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FINAL REPORT:

EVALUATION OF THE DEMONSTRATIONS TO IMPROVE ACCESS TO CARE FOR PREGNANT SUBSTANCE ABUSERS

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EXECUTIVE SUMMARY

The Evaluation of the Demonstrations to Improve Access to Care for Pregnant Substance Abusers examined five demonstration programs—one each in Maryland, Massachusetts, New York, South Carolina, and Washington. The demonstrations were designed to identify pregnant women who use drugs; provide them with prenatal care, substance abuse treatment, and support services; and improve their health and that of their infants, thus potentially reducing costs to the Medicaid program. The states were chosen through a competitive grant solicitation, on the basis of their innovative programs and willingness to collect data for the evaluation. The evaluation was funded by the Health Care Financing Administration (HCFA) under a contract with Mathematica Policy Research, Inc. (MPR) and its subcontractors Health Systems Research, Inc. (HSR) and the National Association for Families and Addiction Research and Education, Inc. (NAFARE). MPR conducted the national evaluation; HSR conducted annual site visits to the demonstrations; and NAFARE conducted focus groups with pregnant substance abusers and providers at the demonstration sites. This report provides an overview of the demonstration programs and the national evaluation, and presents findings regarding the achievement of the very ambitious demonstration goals.

THE DEMONSTRATIONS AND THE EVALUATION

The demonstrations operated from about mid-1993 to mid-1996, with some minor variations in the timing of implementation. They were intended to supplement existing service systems established to improve outcomes for pregnant substance abusers and their children. Demonstration projects used outreach, screening, expanded coverage for substance abuse treatment services, and other support services such as case management to help women obtain integrated prenatal care and substance abuse treatment. A brief description of each state's demonstration follows:

- *Maryland's Better Chance* program in Baltimore used outreach, support groups, and case management services. Its small, focused intervention was centered at the Johns Hopkins obstetrical clinic.
- *Massachusetts' Medicaid Opportunities to Help Enter Recovery Services (MOTHERS)* program operated statewide. The state obtained an IMD waiver¹ allowing the demonstration to cover residential substance abuse treatment under Medicaid and also conducted an extensive research effort to study its existing treatment system.
- *New York's* demonstration operated in six sites: three in New York City and three in upstate New York. The program consisted of outreach and enhanced substance abuse treatment; treatment in residential facilities was offered under an IMD waiver.

¹An IMD waiver allows the state to cover services in an Institution for Mental Diseases (IMD), a category of residential substance abuse treatment that is generally excluded from Medicaid.

- *South Carolina's Transitions* program operated in three primarily rural counties. The demonstration included outreach, case management, and expanded substance abuse treatment.
- *Washington's First Steps PLUS* program in Yakima County had an outreach component, training for prenatal care providers, standard screening to identify pregnant substance abusers, parenting education, case management, and substance abuse treatment in residential settings under an IMD waiver.

The national cross-site evaluation of these five demonstrations used qualitative and quantitative methods to study the implementation of the demonstration, identify who was served by the demonstrations, and analyze the outcomes for demonstration clients and other pregnant substance abusers in demonstration and comparison areas. Data for the evaluation were collected from multiple sources, including site visits, focus groups, state Medicaid claims files, state substance abuse treatment system files, birth certificates, surveys in two states, and some limited information collected by the demonstration programs.

FINDINGS

Implementation

The demonstration interventions varied widely. Outreach--specifically, identifying and recruiting pregnant substance abusers--was one of the most difficult challenges to the demonstrations. All demonstrations developed one or more approaches to outreach. The success of some strategies, such as media campaigns and community-based outreach, was limited, largely because pregnant substance abusers were very reluctant to be identified. Social stigma, a desire to continue to use drugs, fear of being prosecuted, and fear of losing their children were all reasons why it was so difficult to find them and bring them into services. South Carolina and Washington developed screening instruments and trained prenatal care and social service providers to identify pregnant substance abusers in a systematic, routine manner. Washington's screening intervention was a cornerstone of its program and identified a large number of at-risk women. In the end, projects identified between 10 and 50 percent of pregnant substance abusers in demonstration areas, depending on the project. The target population was older and had more children on average than other pregnant women on Medicaid, as were the women served by the demonstrations.

Enrollment rates were higher in the two demonstrations, South Carolina and Washington, that implemented more broad-based outreach efforts and identified demonstration clients in a variety of ways, including routine screening. Their outreach efforts, especially the broad-based screening program in Washington, suggest ways to successfully reach pregnant substance abusers.

The demonstrations in Maryland, South Carolina, and Washington sponsored a set of other activities, generally in prenatal care settings, to assist pregnant substance abusers in receiving all

needed services. Maryland provided support groups, Washington offered parenting education, and all three demonstrations sponsored case management.

The substance abuse treatment sponsored by the demonstrations also varied from state to state. None of the demonstrations developed entirely new programs. Three of the states (New York, South Carolina, and Washington) modified and enhanced existing treatment programs to fit the needs of pregnant women. This process took time and was not always smooth, since existing treatment programs were not generally designed for this population. For example, both South Carolina and Washington modified existing programs in short-term residential settings that had previously served primarily a non-Medicaid population, while New York modified existing substance abuse treatment programs to include a range of support services for pregnant women. Massachusetts obtained a waiver to cover its existing treatment programs that had previously been modified to serve pregnant women. Maryland did not offer formal substance abuse treatment as part of the demonstration.

Outcomes

The outcome analysis showed that pregnant substance abusers were difficult to identify and recruit into treatment programs, and that once they were recruited, it was difficult to retain them. In addition, their birth outcomes remained extremely poor, and costs remain about twice that of other pregnant women enrolled in Medicaid. While our outcome analysis was based on limited data and a nonexperimental design, it did not show that the demonstration programs increased the number of pregnant substance abusers who received prenatal care or substance abuse treatment, or that services led to higher birthweights or lower program expenditures. However, demonstration clients who received "intensive treatment," as defined by higher levels of and greater retention in treatment, had higher birthweight infants, as compared to those with minimal treatment. Since the groups being compared both had a need for treatment, the results suggest that birth outcomes can be improved for some pregnant substance abusers.

A client-level analysis of outcomes revealed some significant differences between outcomes for demonstration clients and other pregnant substance abusers in demonstration areas. However, since women self-selected into demonstration programs, the differences could have been due primarily to the selecting of a special population into the demonstration. An area-wide outcome analysis, which was not subject to these selection problems, showed no significant differences in trends in key outcomes--prenatal care use, substance abuse treatment use, birthweight, or total Medicaid expenditures--in demonstration areas relative to trends in other similar areas where the demonstrations were not operating. Throughout the report we caution that many outcomes we observed cannot be attributed directly to the demonstrations due to the lack of a randomized design. With this caveat in mind, we tentatively conclude that the demonstrations were not able in general to achieve their very ambitious goal of improving outcomes for pregnant substance abusers and reducing overall Medicaid expenditures for this high-risk group, although intensive treatment appeared to be potentially effective for some women.

CONCLUSIONS

The national evaluation of the Demonstrations to Improve Access to Care for Pregnant Substance Abusers provides insights into the challenges of identifying and serving a very high-risk group within the Medicaid population. It also underscores dramatically the necessity of sustained efforts to address the needs of pregnant substance abusers. We conclude with a recommendation for more rigorous studies based on an improved study design and a demonstration model based on the lessons from this evaluation. The model demonstration program would include:

- Linkages between Medicaid, substance abuse, and health agencies at the state level, and between prenatal care and substance abuse treatment at the local level
- Screening, based on a standardized protocol, and uniform training in how to screen within a variety of traditional and nontraditional providers and agencies, such as prenatal care providers, social services offices, and other places where substance abusers may come for services
- Referral to on-call outreach workers who are trained in substance abuse counseling
- A continuum of care including prenatal care, detoxification, intensive substance treatment (either residential or outpatient), and follow-up outpatient care for at least three months, with support services such as case management and child care to increase retention.
- An evaluation design that would involve random assignment to either intensive outpatient or residential care after detoxification, with Medicaid IMD waivers for those receiving residential services.

I. HCFA'S DEMONSTRATION AND EVALUATION

The Demonstrations to Improve Access to Care for Pregnant Substance Abusers were prompted by rising concern on the part of Congress, the Administration, other federal agencies, and states about substance abuse during pregnancy (see, for example, U.S. General Accounting Office 1990). Other related initiatives included the Pregnant and Postpartum Women and Their Infants (PPWI) Program (Laken and Hutchins 1996, Macro International 1993), funded through block grants from the Substance Abuse and Mental Health Services Administration, and the "Perinatal 20 Projects," funded by the National Institute on Drug Abuse (U.S. Department of Health and Human Services 1996). Many states used these grants to begin planning and establishing prevention and treatment programs for pregnant women (Breyel and Hill 1993).

Federal and state support for such initiatives was driven by the public's increasing awareness in the 1980s of substance abuse during pregnancy as a major public health problem. This new awareness was largely the result of several prominent articles that exposed the high prevalence of substance abuse during pregnancy (Chasnoff, Landress, and Barrett 1990), the health problems that result from such abuse (Chasnoff et al. 1985), and the high cost of this behavior (Phibbs, Bateman, and Schwartz 1991).

As policymakers and the American public turned their attention toward the problem of substance abuse during pregnancy, the Health Care Financing Administration (HCFA) responded to the problem by launching the Demonstrations to Improve Access to Care for Pregnant Substance Abusers. As the agency that administers the federal Medicaid program, HCFA is responsible for paying for maternity care for low-income women and for the medical care of their infants and children, and for developing broad policy guidelines within which the states administer their

Medicaid programs. At that time, there was preliminary evidence that the prevalence of substance abuse during pregnancy was substantial and that costs were high, but little was known about successful ways to treat the problem. While recently expanded eligibility for pregnant women allows more women to obtain Medicaid coverage, the program does not cover all services that may be needed by pregnant substance abusers. Although it does cover most standard prenatal care and some substance abuse treatment, it does not offer extensive coverage of substance abuse treatment. Historically, substance abuse services have been considered the province of state substance abuse agencies, with federal funding coming through the Substance Abuse and Mental Health Services Administration block grants.

HCFA's response to this dilemma was a demonstration program that would support the development and implementation of innovative approaches to reaching and treating pregnant substance abusers under Medicaid. The goal of the demonstrations was to increase access to care for these women and to help them moderate or end their use of drugs and other harmful substances, thus improving their health and the health of their infants, and reducing Medicaid expenditures. The demonstrations also reflect HCFA's understanding of the need to address prenatal alcohol use and substance abuse during the postpartum period.

The demonstrations included the following components:

- Outreach to pregnant substance abusers
- Screening for substance abuse and assessment of the severity of substance abuse
- Case management to link women with appropriate services, including prenatal care and substance abuse treatment
- Expanded Medicaid coverage for substance abuse treatment and an enriched package of support services provided during treatment
- Efforts to better integrate the prenatal care and substance abuse treatment system.

This report presents the results of the HCFA-funded evaluation of the demonstrations conducted by Mathematica Policy Research, Inc. (MPR)—and its subcontractors Health Systems Research, Inc. (HSR) and the National Association for Families and Addiction Research and Education (NAFARE). The remainder of this chapter describes the medical and policy context for the demonstrations and summarizes both the demonstrations and the evaluation. Chapter II describes the demonstration programs in more detail, including the experiences of the demonstration projects in reaching and serving pregnant substance abusers and the lessons learned from implementing the demonstrations. Chapter III presents findings on behavioral and birth outcomes for demonstration clients, including an analysis of the level and intensity of the services received, birth outcomes, and Medicaid expenditures. The final chapter presents lessons from this evaluation that may inform future efforts to address the problem of substance abuse during pregnancy.

A. CONTEXT OF THE DEMONSTRATION PROGRAMS

1. Scope of the Problem

Evidence suggests that between 6 and 15 percent of pregnant women use illegal substances—such as cocaine, heroin, or marijuana—during pregnancy, depending on the source of data and geographic area of the study (Chasnoff, Landress, and Barrett 1990; U.S. General Accounting Office 1990; U.S. Department of Health and Human Services 1996a). Furthermore, the number of pregnant women using drugs increased significantly in the 1980s (Dicker and Leighton 1994).

Concern about women using drugs during pregnancy reflects findings that perinatal drug use has a harmful effect on the mother and the developing fetus. Mothers have a greater risk of developing complications during pregnancy, and they also experience a higher incidence of infectious disease relative to other women (Chasnoff 1988, Chasnoff et al. 1992, Finnegan and

Kandall 1992). Drug-exposed infants can suffer medical and developmental defects (Robins and Mills 1993, Finnegan and Kandall 1992). Although the long-term effects of drug abuse in the prenatal period are not well established, the physical and behavioral development of drug-exposed infants may eventually be impaired (Chasnoff et al. 1992, Kronstadt 1991).

In addition to the health consequences of substance abuse for the mother and infant, the economic cost of prenatal exposure to illicit drugs is high (Hay 1991). Joyce et al. (1995) found that infants exposed to cocaine or some other illicit drug stay in the hospital seven days longer at a cost of \$7,731 more than unexposed infants. Added to this is the cost of basic care for infants in the hospital nursery while their homes are being evaluated or while they await placement in foster care ("boarder babies") (Phibbs, Bateman, and Schwartz 1991). Finally, there are potential long-term costs of foster care and special education, but these have not been carefully documented in empirical studies.

2. Substance Abuse Treatment for Pregnant Substance Abusers

Treatment for substance abuse may be provided in an outpatient or a residential setting (Gerstein and Harwood 1990). Within each setting, treatment varies in terms of duration and intensity, use of pharmacological interventions, and the provision of counseling and other support services. However, many researchers have documented the lack of substance abuse treatment options designed for and available to women, particularly mothers and pregnant women, and the corresponding lack of research on this topic (Finkelstein 1990, 1993; Chasnoff 1991; Reed 1987; Chavkin 1990; Suffet 1985). Treatment options for women, and pregnant women in particular, have expanded in recent years, but the choices for pregnant Medicaid recipients and women needing child care are more

limited than for other women (Breitbart, Chavkin, and Wise 1994). Although new options are evolving, little is known about their effectiveness.

Many experts contend that treatment programs for pregnant substance abusers should take a comprehensive, family-oriented approach. In addition to providing comprehensive medical care and treatment for substance abuse, the program should address the many interpersonal, social, and economic realities unique to this population and should support both the woman and her family (Coalition on Addiction, Pregnancy, and Parenting 1991, Finnegan 1994, U.S. Department of Health and Human Services 1993). In other words, treatment programs should be gender-specific, link prenatal care with substance abuse counseling and community-based services, and address child care and transportation needs.

3. The Role of HCFA

HCFA's role in addressing the issue of substance abuse during pregnancy is defined essentially by the scope of the Medicaid program. The Medicaid program provides medical assistance to low-income families with dependent children, covering children up to age six and pregnant women living at or below 133 percent of the federal poverty level.¹ HCFA's role in the lives of pregnant women grew in the late 1980s and early 1990s as Congress passed a series of provisions allowing states to expand eligibility for pregnant women and infants. These decisions increased HCFA's and the states' financial involvement in prenatal, delivery, and postnatal care. An estimated 8 million pregnant women, infants, and children age 1 to 5 in the U.S. were enrolled in the Medicaid program in 1994 (Holahan 1997). The National Governor's Association (1997) estimates that in 1994 and 1995 the Medicaid program covered 39% of births nationwide.

¹The federal poverty level is defined by the Census Bureau, and is the minimum amount of resources needed to purchase a simple market basket of goods and services.

As the abuse of illicit drugs and treatment options increased, states began to cover some substance abuse treatment under existing Medicaid-mandated and optional services. However, most forms of residential treatment not provided in hospitals were, and still are, excluded from both sets of services. In particular, services in institutions for mental diseases (IMDs), residential facilities with 16 or more beds that specialize in mental health and substance abuse treatment, are not covered by Medicaid for people aged 21 to 64. The IMD exclusion policy reflects Congress's position that the funding of inpatient treatment of mental and substance abuse disorders is the responsibility of the states, and this position has been a point of considerable controversy between the states and the federal government (U.S. Department of Health and Human Services 1992).

These forces--the growing problem of substance abuse during pregnancy--HCFA's increasing concern for substance abusing, low-income pregnant women and their infants, and the limitations on Medicaid-covered treatment services--led to the HCFA-funded demonstrations in September, 1991. The goal was to provide enhanced and expanded services, including substance abuse treatment, in order to reduce drug use among Medicaid-eligible pregnant substance abusers, and, in turn, to improve the health of these women and their infants and reduce Medicaid expenditures.

B. THE DEMONSTRATION PROGRAMS

HCFA funded demonstration projects in five states--Maryland, Massachusetts, New York, South Carolina, and Washington. The states were chosen through a competitive cooperative agreement solicitation on the basis of whether their existing infrastructure could support a project, the strength of the program they proposed, and their willingness to collect data for evaluation purposes. The total cooperative agreements, \$4.4 million, covered one year of planning, three years of operation, and six months of phase-down in all states. By state, the cooperative agreements totaled \$809,000 for

Maryland, \$694,000 for Massachusetts, \$1,398,000 for New York, \$718,000 for South Carolina, and \$769,000 for Washington. (These funds include direct demonstration project expenses, but not the additional expenditures by the Medicaid program to cover new demonstration-sponsored services). All states but Maryland obtained waivers to offer new Medicaid-covered services, including residential treatment. Most projects began delivering demonstration services around July 1993, one year after planning, and continued to operate through the fall of 1996. A detailed time-line for each demonstration project appears in Appendix A.

Before the demonstrations began, these states had been making some efforts to enhance systems of care for pregnant women generally, and for pregnant substance abusers and their children specifically. The level of this activity varied across the states. All of the states, for example, had established interagency task forces to find ways to tackle the problem of pregnant substance abuse. Some had also enhanced case management and support service systems for high-risk pregnant women, expanded treatment options for pregnant substance abusers, developed new treatment protocols for pregnant women, and initiated efforts to strengthen the links between the health and drug treatment delivery systems for pregnant substance abusers. The demonstrations were designed to enhance these existing systems of care.

As the states designed their demonstrations to reach and serve high-risk women, they had little empirical evidence of effective models on which to base their plans. Instead, they relied on their own programmatic experiences, on the experiences of people in their existing delivery systems, and on the experiences of others across the country. In general, they used one or more strategies to address the following challenges:

- To reach out to and bring pregnant substance abusers into care.
- To provide prenatal care and substance abuse treatment services that would meet the unique needs of this population.
- To coordinate the multiple systems of care with which women interact.
- To provide a seamless and comprehensive course of treatment.

Although the demonstrations shared the goal of reducing drug use to improve birth outcomes, each project varied in the emphasis it gave to various interventions and to the research components of the demonstration. This variation reflected differences in the existing systems of care and in the level and sophistication of existing efforts to strengthen the delivery system for pregnant substance abusers. Variations also occurred over time, as the projects, with experience, developed new strategies to replace those that seemed ineffective. The result of this variation was not a singular intervention, consistent from state to state and over time, but a constellation of activities offering multiple possibilities for assisting pregnant substance abusers.

C. THE NATIONAL EVALUATION²

HCFA contracted with MPR and its two subcontractors to conduct the national evaluation, a five-year study that began in October 1992 and continued through December 1997. The goal of the national evaluation was to determine the extent to which the projects made progress toward the goal of reducing substance use among pregnant women so that birth outcomes could be improved and Medicaid expenditures reduced. The national evaluation examined the implementation of the demonstrations, including the extent to which the demonstrations identified women in need, engaged

²A list of all reports from the national evaluation and the tables of contents for each report are provided in Appendix B. The final reports from the demonstration programs themselves, submitted to HCFA in 1997, should be consulted for more detailed information on the programs and their outcomes.

them, and successfully provided them with needed services--both substance abuse treatment and other support services. It also examined a series of outcomes for those served by the demonstrations including the receipt of prenatal care and substance abuse treatment; abstinence; birth outcomes; and Medicaid expenditures. The evaluation results reported here consist of these two components: an implementation analysis and an outcomes analysis.

1. Research Questions

In the implementation analysis, we examine the states' experiences in identifying women, assessing their needs, and providing services to them. Specifically, we address the following research questions:

- What were the demographic characteristics of the women targeted by the projects, and how did they differ from other Medicaid pregnant women?
- How many women did the projects identify? What were their demographic characteristics? Did these women differ from pregnant substance abusers not identified by the projects?
- What services did the women who were identified by the projects receive? Where did they receive services (from the demonstration or from the existing service delivery systems)? What were their patterns of care? What types of substance abuse treatment did they receive?
- What were the projects' experiences identifying pregnant substance abusers and delivering services to them? Did they learn new ways to engage this population and to improve service delivery? If so, what factors accounted for this success? If not, what were the major barriers?

In the outcomes analysis, we compare demonstration clients to women who did not participate in terms of two intermediary outcomes (the receipt of prenatal care and substance abuse treatment) as well as abstinence, birthweight, and Medicaid expenditures. Specifically, we address the following research questions:

- How many demonstration clients received prenatal care and substance abuse treatment? How did their patterns of use and the adequacy and intensity of the services compare with those for other substance abusing pregnant women?
- Did demonstration clients achieve abstinence from substance abuse during pregnancy?
- What were the birth outcomes for demonstration clients? Was their average birthweight different from the average for nonsubstance abusing and other substance abusing Medicaid women? What proportion of demonstration infants were low birthweight, and how did this compare with the proportion in other groups?
- What was the level of Medicaid expenditures for demonstration clients? How did this level compare with that for other Medicaid women?
- Did pregnant substance abusers in the demonstration area, regardless of whether they were served by the demonstration, experience outcomes that were different from those experienced by pregnant substance abusers in nondemonstration areas?

To address some of these questions, we compared the outcomes for demonstration clients to those for pregnant substance abusers living in the demonstration area but not participating in the demonstration project. In addition, we compared outcomes over time for all pregnant substance abusers living in the demonstration area (who may have been affected by the demonstration interventions such as outreach and provider education) to outcomes for pregnant substance abusers living in comparison areas.

This analysis can inform us about the outcomes for demonstration participants and for those in the demonstration area. It can also tell us how these outcomes compare with outcomes for other groups of women. However, it is limited by several important factors. First, there was neither a randomized study design nor a single intervention consistent within or across states; consequently demonstration clients may have differed from other pregnant substance abusers in significant, non-measurable ways. In addition, very small sample sizes resulted in low power to detect statistically

significant differences among groups of women. We cannot therefore always say with confidence that differences in the outcomes for demonstration clients were due to the demonstration.

However, the outcomes analysis does provide new information on the important public health problem of substance abuse during pregnancy. It brings into focus the characteristics of pregnant substance abusing women, the variation in their service use patterns, and their experiences in and responses to the demonstrations. The comparisons can provide a context for understanding the consequences of substance abuse during pregnancy. The findings provide suggestive--although not definitive--evidence about the demonstrations' impacts, providing a basis for further studies of the impact of substance abuse treatment and other services for this high-risk group.

2. Time Periods and Study Areas

Although the types of data and the time periods over which the data were collected varied somewhat by state, data were obtained in general for the period July 1, 1991 to December 31, 1995. Thus, the data cover the periods before and after the demonstrations began (the "baseline" and "demonstration" periods). Figure 1.1 shows when data were collected in each state. Baseline data were obtained in four states: Maryland, New York, South Carolina, and Washington. The variation in data collection periods across states reflects the analysis plan for the data and differences in demonstration implementation schedules (Thornton, Howell, and Alonso, 1993). Since the data collection for the national evaluation ended before the demonstration projects ended, experiences of the demonstrations in a portion of their last year were not evaluated. Some states have stated that their projects performed best at this time. Therefore, the national evaluation may underestimate the projects' successes.

FIGURE I.1

DATES OF BASELINE AND DEMONSTRATION PERIODS BY STATE

State	1991	1992	1993	1994	1995	1996
Maryland	----- ----- ²					
Massachusetts	----- ³					
New York	---- ---- -----					
South Carolina	----- -----					
Washington	----- -----					

Key: |-----| indicates data obtained for the baseline period.
 |----| indicates data obtained for the demonstration period.

NOTE: 1. Time periods reflect the date of delivery. Medicaid data for the nine months prior to and six months following delivery were obtained.

2. In Maryland, data for demonstration clients are through 1995; data on other pregnant women are through 1994 only due to managed care implementation.

3. In Massachusetts, data are for demonstration clients only.

All the states except Massachusetts defined a part of the state as their demonstration area. In those states, MPR staff worked with state staff to identify nondemonstration (i.e., comparison) areas, so that trends in outcomes for pregnant women in the demonstration areas could be compared with trends in outcomes for pregnant women in other areas of the state. Maps of the demonstration and comparison areas appear in Appendix C. Comparison areas were selected to be similar to demonstration areas in the poverty characteristics of the residents.³

3. Evaluation Data Sources

We used several qualitative and quantitative data sources in the demonstration evaluation. The qualitative data gave a picture of the interventions and program experiences, providing a context in which to interpret the quantitative findings. The quantitative data provided information for each woman on the services she received and the outcomes she experienced as well as information on the costs of the services received.

The qualitative data sources include (1) information collected during site visits conducted by HSR to the projects during each of the three years of the demonstrations (2) reviews of program documents, and (3) results from focus groups conducted by NAFARE with demonstration participants and providers during late 1994 and early 1995.⁴ Information was collected on the interventions, the service delivery systems for the various demonstration components, the relationships among service providers, the struggles and problems of pregnant substance abusers, and the demonstration projects' challenges and successes.

³See Howell et al. (1994) for a detailed description of the method of selecting comparison areas.

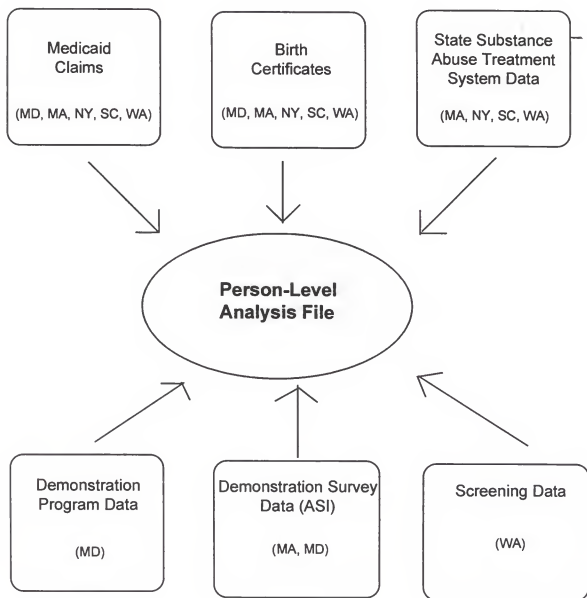
⁴See Hill, et al. (1994) and Howell et al. (1996) for summaries of site visit and focus group findings.

The quantitative data sources include:

- **Medicaid claims files**, which provided information on Medicaid-eligible women delivering infants, including information on the characteristics of the women, claims for the services they and their infants used that were covered by Medicaid, and Medicaid payments for those services.
- **Birth certificate data**, which provided information on both prenatal care and birthweight. In addition, those data included codes identifying infants showing the effects of alcohol or drugs.
- **State substance abuse treatment data**, which provided information on use of substance abuse treatment services in state programs not covered by Medicaid. Information on the severity of substance abuse and the type of drug used was also available for those women in the state treatment system.
- **Demonstration program data** in Maryland, which provided information on demonstration-sponsored support groups and case management services.
- **Survey data** from two of the demonstration projects (Maryland and Massachusetts) which provided information on types of drugs used and the use of drugs after delivery.
- **Screening data** in Washington which identified the women who were screened by the projects and shown to be at risk of substance abuse.

These data were linked to create a person-level analysis file as illustrated in Figure 1.2. Not all sources of data were available for all women. At a minimum, when information from Medicaid claims was available for a delivery, a record was included in the analysis file. All women who delivered infants after 1995 were excluded, since claims for that period were unavailable in time for this evaluation report. Appendix D includes more detail on the exclusions from the analysis file. Howell et al. (1997) provides more detail on the variables in the analysis file and the construction of the database.

FIGURE I.2
QUANTITATIVE EVALUATION DATA SOURCES



II. THE DEMONSTRATIONS AND THEIR IMPLEMENTATION EXPERIENCE

A. THE DEMONSTRATIONS

Each demonstration sought to address an extremely difficult problem, one that had been rarely addressed by state Medicaid programs and never on such a broad scale. Using the broad definition of program goals in the HCFA cooperative agreement solicitation, the projects developed plans to:

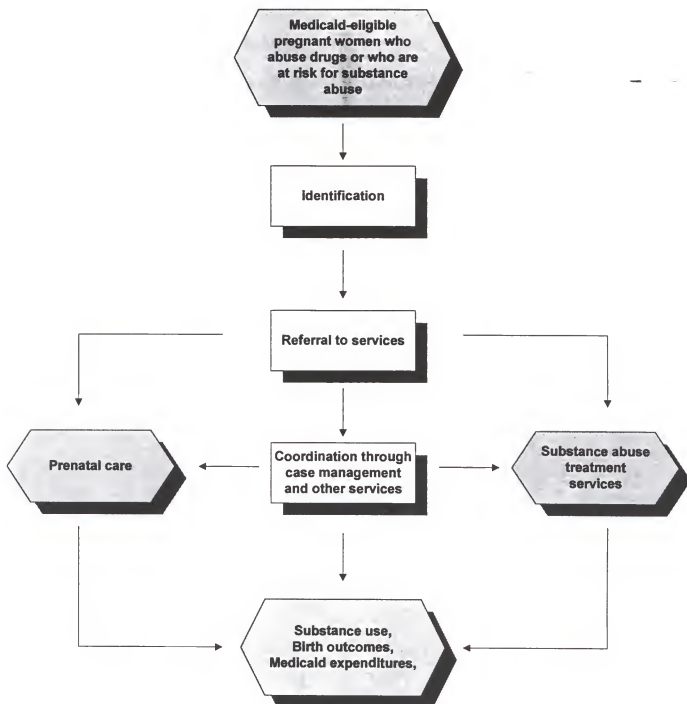
- Strengthen the linkages that already existed between state and local agencies who served pregnant substance abusers
- Identify pregnant substance abusers, a population frequently "hidden" from the existing delivery system.
- Provide substance abuse treatment and support services to them through the following channels:
 - Directly from the demonstration
 - From the existing Medicaid program or state substance abuse treatment system, which the demonstration might facilitate through its outreach efforts
 - From Medicaid through waivers only for the demonstration.

In this chapter we describe the actual interventions developed by the projects, whom they reached with the services they provided or facilitated, and the problems they encountered in the process. We also provide information from focus groups on what pregnant women and their providers felt about the demonstration efforts.

1. Demonstration Framework

While each demonstration took a unique approach to reaching and serving pregnant substance abusers, they also had common features. Figure II.1 arranges these features in a framework that was

FIGURE II.1
SYSTEMS FRAMEWORK FOR SERVING MEDICAID-ELIGIBLE
PREGNANT SUBSTANCE ABUSERS



fairly consistent from project to project. As shown, all the demonstrations targeted Medicaid-eligible pregnant women who abused drugs. To bring this target population into care, all the projects implemented outreach interventions.¹ When the women responded to outreach efforts, the projects assessed their problems and their need for services. Women were then provided with or referred to demonstration-sponsored and existing services, the goal being to get them into prenatal care and substance abuse treatment. The demonstration-sponsored services that were intended to enhance or coordinate existing services included case management; support groups; and other support services, such as assistance with child care and transportation.

2. Project-by-Project Descriptions

The demonstrations were designed in very different ways from state to state. Also the projects were not always implemented as originally designed and they evolved over time to address changes in the health care delivery system, to adjust to circumstances that prevented them from implementing their original design, and to incorporate lessons learned along the way. Table II.1 summarizes the main features of the projects as they were actually implemented. This section highlights, by project, these various approaches to finding and serving pregnant substance abusers.

a. Maryland

Maryland's *Better Chance* project was a cooperative effort by the Maryland Department of Health and Mental Hygiene and the Johns Hopkins University School of Medicine and its hospital. It operated in the Baltimore area, implementing outreach strategies and providing support group and case management services.

¹Massachusetts' outreach efforts were brief (one year) and geographically limited. Consequently, we did not address them in the national evaluation.

TABLE II.1

OVERVIEW OF HCFA PREGNANT SUBSTANCE ABUSE DEMONSTRATION PROJECTS

Location	Project Name	Outreach	Support Services	Substance Abuse Treatment
Maryland (Baltimore)	Better Chance	Enhanced information hotline, media campaign, street outreach, referral network development, and provider training	Support groups, alone or in combination with case management	No intervention
Massachusetts (statewide)	MOTHERS	Certified addictions counselors posted in the community to support lay outreach workers in the first year, in two sites only	No intervention	Medicaid coverage of residential treatment services for pregnant women in facilities statewide
New York (Six sites: Bronx, Brooklyn, Buffalo, Manhattan, Newburgh, Syracuse)	Treatment Services for Pregnant Substance Abusers	Provider training and network building Outreach by trained professional or lay outreach workers (depending on the site)	Offered as part of treatment programs	Medicaid-coverage of selected residential and drug-free ambulatory programs including an enriched package of Medicaid-covered services for pregnant women. In addition, a number of medically supervised treatment programs, which were Medicaid-funded prior to the demonstration, provided the enriched package of services under waivers.
South Carolina (Orangeburg, Calhoun, and Bamberg counties)	Transitions	Outreach by specially trained lay outreach workers, provider education, and a media campaign late in the project. Screening using a uniform form.	Enhanced case management	Medicaid coverage of a residential program (first year only) and a new treatment protocol in an outpatient facility; support services for those in treatment
Washington (Yakima County)	First Steps PLUS	Outreach and assessment by trained workers, media campaign, provider education, screening using a uniform form, and network building	Parenting education and case management	Medicaid coverage of medical stabilization in a non-hospital setting, specialized long-term residential services, and enhanced support services such as therapeutic child care

Better Chance used three outreach strategies to recruit women: (1) an enhanced perinatal outreach hotline; (2) a multi-media advertising campaign consisting of brochures and posters, direct mailings, and advertisements on billboards, buses, radio, and television; and (3) a referral network of provider groups that were educated about the Better Chance project. These strategies evolved over time as their effectiveness was assessed by project staff, and many were phased out during the course of the project. In late 1994, the project launched a new strategy in an attempt to increase enrollment levels; existing community-based street outreach workers were trained to identify pregnant substance abusers and refer them to the project.

The central intake point for the Better Chance project was the Johns Hopkins obstetrics clinic. Pregnant substance abusers seeking care at the clinic either identified themselves or were identified with a positive toxicology screen. Identified substance abusers were asked to participate in the project. Those who agreed to participate were administered the Addiction Severity Index (ASI) survey including questions about drug use and treatment. The ASI was used by staff to assess the severity of a woman's addiction and to understand her history of drug use and treatment as well as her current needs. The women were then eligible to receive project services. The follow-up ASI was also administered at delivery and 12 months postpartum.

The project had a specialized support group, offered alone and in combination with case management services. Women were randomly assigned to one of these two groups--one that received support group services only and one that received support groups plus case management.

The support group was built on an existing support group program and dealt with issues such as managing thoughts about drugs, drug-refusal skills, treatment issues and options, strengthening support networks, problem solving, anger management, and managing relationships. The case management services attempted to increase the number of women who participated consistently in

the support group and to further motivate them to enter formal substance abuse treatment programs. Through the development of service plans and regular contact with the women, the case managers also provided support and assistance in accessing a wide range of services and addressing short-term emergencies. Women were not required to be abstinent from drug use to participate in Better Chance.

In summary, the Better Chance project used multiple outreach strategies, designed to draw clients to the Johns Hopkins obstetrics clinic, where they were recruited into the demonstration. The demonstration-funded services included support groups and case management. While the demonstration did not fund any special substance abuse treatment services, project staff encouraged women to enter existing treatment programs in the community.

b. Massachusetts

The Massachusetts Division of Medical Assistance and the Bureaus of Substance Abuse Services and Family and Community Health Services, in conjunction with the contractor Health and Addictions Research, Inc., conducted the *Medicaid Opportunities to Help Enter Recovery Services (MOTHERS)* project. The project itself, which operated statewide, did not provide any substance abuse treatment or prenatal care services. Instead, Massachusetts obtained an IMD waiver to allow all residential treatment facilities in the state that served Medicaid-eligible pregnant and postpartum women to be reimbursed by Medicaid for residential services provided during the demonstration period. Also, the project involved an intensive research effort, more comprehensive than the other four demonstrations' research, in which very detailed data were collected, analyzed and reported.

The MOTHERS project included an outreach strategy, which ended after the first year. The idea behind the strategy was to use lay outreach workers and substance abuse specialists to identify, and

provide case management for, pregnant substance abusers. The project struggled to implement this strategy for some time but had little success because of the reluctance of lay workers to identify substance abusers. Since this outreach strategy was never fully implemented, and since it operated for only a very short time, almost no data on it were collected. We therefore did not evaluate it as part of the national cross-site evaluation. However, Massachusetts demonstration staff did document the problems and issues related to this approach to outreach in a separate report (Argeriou 1996).

In the absence of an outreach strategy, the MOTHERS project asked women who entered free-standing detoxification centers targeted to pregnant women to enroll in the project. These detoxification centers ensure a safe medical withdrawal from alcohol and other drugs during all trimesters of pregnancy. Women in these centers who agreed to participate in the project were administered the Addiction Severity Index survey before they left the center. They were also interviewed at three follow-up points (90 days, 180 days, and 270 days following the initial interview).

Independent of the demonstration, a range of approaches to treatment in the existing system were developed for pregnant and postpartum women before and during the demonstration period. Included were several residential programs that allowed women to keep their children with them while in treatment. By the third year of the demonstration, 15 specialized residential treatment facilities provided long-term residential services (six months to a year) for pregnant and parenting women around the state. During the demonstration period such services were covered by Medicaid under the HCFA demonstration waiver.

In summary, the MOTHERS project used an outreach strategy in the first year only. The project did not directly provide any services but allowed for Medicaid coverage of residential treatment

services for pregnant and postpartum women in facilities throughout the state. It also included an intensive research component.

c. New York

With ongoing assistance from the state Department of Health and the Office of Alcoholism and Substance Abuse, the New York Department of Social Services implemented the *Treatment Services for Pregnant Substance Abusers* project in six sites--three upstate (Buffalo, Newburgh, and Syracuse) and three in New York City (the Bronx, Brooklyn, and Manhattan). The project was designed to expand outreach services and substance abuse treatment options for pregnant substance abusers.

Designated lead local agencies in each city received funds to implement a variety of outreach activities, including community-based case finding, referral to appropriate case management agencies, linkage building between prenatal care and treatment providers, and training of health and social service providers to better identify, and encourage the participation of, pregnant substance-abusing women. Within general guidelines, the lead agencies were free to structure their outreach interventions to meet local needs.

The demonstration project also permitted providers that were solicited and selected by the state to deliver and receive Medicaid payments for a range of treatment services not previously covered by Medicaid. These new services included residential treatment program services, outpatient services delivered in non-medically supervised settings² and support services in each of these settings as well as in medically supervised outpatient programs.

²Prior to the demonstration, outpatient substance abuse treatment was already covered by Medicaid in medically-supervised settings.

The support services that were newly funded through Medicaid included child care, vocational and educational training, life skills/self-esteem building, transportation, health education, and nutritional counseling. Facilities providing newly-funded services included 6 residential programs (with 10 sites), 8 drug-free outpatient programs (with 15 sites), and 6 medically supervised programs (with 7 sites). All pregnant women served in these participating facilities participated, by definition, in the demonstration project. Unfortunately, no individual-level data were collected for the evaluation on the particular support services provided in demonstration-sponsored treatment programs.

In summary, New York's demonstration project used outreach activities and offered expanded substance abuse treatment options by providing Medicaid coverage for new types of residential and outpatient treatment. The project also offered support services for pregnant women in existing Medicaid-covered substance abuse treatment facilities.

d. South Carolina

South Carolina's *Transitions* project, administered by the State Health and Human Services Finance Commission and Department of Alcohol and Other Drug Abuse Services, was designed to be a community-based, comprehensive service system for pregnant substance abusers in three rural counties: Orangeburg, Calhoun, and Bamberg. The project included outreach services, case management, and expanded substance abuse treatment options.

In the beginning of the demonstration, the project used lay community outreach workers to find pregnant substance abusers in non-traditional settings. These workers were later transferred to direct service sites in an attempt to identify more women by focusing on those who were already using other services, but the workers continued to do some community-based outreach. In addition,

training was provided for outreach workers, prenatal care and substance abuse treatment providers, and staff of other community agencies on the special needs of pregnant substance abusers and on methods for identifying them and referring them to services. The prenatal care providers, such as the local community health center which is a major source of primary and prenatal care for Medicaid women in the area, used a special screening form to identify women using drugs and those at-risk. In addition, the project funded some case management services and support groups.

The Transitions project also extended Medicaid coverage to previously uncovered services, including short-term residential treatment and an enhanced package of outpatient services. The Dawn Center, the only substance abuse treatment program serving the three-county area, was the primary treatment source for project clients. Because this facility experienced significant changes during the demonstration, the services available to pregnant substance abusers changed over time. For example, only in the first year of the demonstration did the facility provide medical detoxification and short-term residential treatment. When the center closed its residential treatment program, women could obtain residential treatment services from facilities located outside the demonstration area, about one hour away. Intensive case management and outpatient services were provided at the Dawn Center throughout the demonstration, using a treatment protocol that addressed the issues unique to pregnant women in drug treatment.

Outpatient treatment was intensive with individual and group counseling provided for at least eight hours per week, and up to five hours a day five days per week. In addition, support services--such as transitional housing, family preservation services, and developmental screening services for children--were made available to women in treatment. As with enhanced services for women in treatment in New York, individual-level data on South Carolina support services were not collected.

In summary, the Transitions project implemented outreach and special support services, and it expanded and enhanced substance abuse treatment options in the Dawn Center.

e. Washington

Washington's *First Steps PLUS* project was administered by the Department of Social and Health Services in collaboration with the Department of Health. It operated in Yakima County, a predominantly rural area in central Washington.

Project outreach consisted of outreach and assessment workers trained in recognizing substance abuse, a media campaign, and training of providers and staff in community agencies to identify pregnant substance abusers and refer them. Outreach and assessment workers conducted outreach and case-finding in high-risk communities to identify and recruit women into the project, assessed women with substance abuse problems and identified treatment options, and worked with county social service workers on how to recognize and address the needs of women with substance abuse problems. These workers, known as "mobile outreach and assessment workers," were trained addiction counselors who performed a variety of functions including providing immediate substance abuse counseling in response to providers who identified women with potential substance abuse problems. A media campaign included television and radio advertisements, posters, and a toll-free number designed to advertise the project and encourage women to contact the project. The provider training was designed to increase providers' awareness of the problem of perinatal substance abuse, improve their skills in identifying substance abusers, and encourage them to use referral systems so that women could be treated. To facilitate this identification, the project used a screening form to help providers identify pregnant women with, or at-risk for, substance abuse problems. Women were screened in prenatal clinics and community service offices.

In addition to the mobile outreach and assessment workers, other social and case management workers were also available to serve as care coordinators for pregnant women at various points in the demonstration. Case management agencies received an extra payment for providing services to women identified as substance abusers; the money was intended to allow case managers to make more frequent contacts with these high-risk women. Prenatal care providers (hospitals, community health centers, and the Indian Health Service) offered intensive parenting education, and a crisis nursery care program was made available in licensed foster care settings.

The First Steps PLUS project allowed for Medicaid coverage of previously uncovered services and enhanced services in two residential treatment facilities. Waivers permitted the state to receive federal funding for services in an IMD, a short-term residential treatment facility, Sundown M Ranch, providing a medical stabilization program and a special 26-day treatment program. This facility also offered pregnancy support groups, parenting classes, and therapy sessions designed to increase self-reliance. In the other treatment facility, Riel House, a long-term residential treatment facility for women and children under six, the existing program for pregnant and postpartum women was augmented by an anger management component, enhanced parenting training, and therapeutic child care. Crisis nursery services were also available for women needing child care during their treatment.

In summary, the First Steps PLUS project implemented outreach activities, screening, and other support services, and expanded and enhanced treatment services in two residential treatment facilities. Thus the Washington demonstration was the most comprehensive and broad-based of the five HCFA demonstration, in terms of the number of interventions that it fully implemented.

B. IMPLEMENTATION EXPERIENCES

The site visits and focus groups conducted with clients in treatment, treatment providers, and program administrators revealed some successes and some problems with implementing services for pregnant substance abusing women in the demonstrations.

1. Service Integration

Integration at the state and local levels was noted to be critical to establishing the framework for agencies to work together, integrate services, and build provider networks. The demonstrations discovered that administrative and service integration was the first step to implementation and that it required strong leadership at the state and local levels. This leadership was generally provided by existing agency staff at the state level, and by staff hired for the demonstration project at the local level. One provider in the focus groups described the effects of this effort:

"The entire system is becoming more integrated. I think we'll see more outreach, more public education, and I expect we'll see more impact on the system at large." [provider]

2. Outreach

Prior to the demonstrations, substance abusing women were often identified very late in their pregnancies or after delivery, when it was too late to affect the course of their pregnancies. A major goal of the HCFA demonstrations was to reach out to and identify pregnant substance abusers early in their pregnancies, in order to prevent or decrease substance abuse during the pregnancy and to ensure adequate prenatal care. One of the overarching problems the demonstrations faced was that pregnant substance abusers were resistant to being identified since drug use was illegal and women feared incarceration or loss of custody of their children. This particularly affected the South Carolina demonstration, where it became apparent during the initial years of the demonstration that the goals

of the project were in direct conflict with Child Protective Service goals. In spite of the development of protocols to include all relevant agencies in the planning process, enrollment in the demonstration apparently became a triggering point for some women to be reported to Child Protective Services. Outreach workers in focus groups noted that some women who were interviewed would not enroll in the project because the Child Protection Agency was listed as a sponsoring agency on the consent form.

While all the demonstrations experimented with various outreach strategies, they were discouraged with the results of many of them. They found that media campaigns were not especially effective in reaching pregnant substance abusers. Maryland, for example, ceased its media campaign after few women responded to it. In South Carolina, the demonstration project began advertising the project with billboards, flyers, and posters to increase enrollment in 1995. During the six months preceding the campaign, the average number of new enrollees monthly was eight; during the six months of the campaign, the average was five, suggesting that the efforts did not increase enrollment. On the other hand, Washington used a media campaign throughout its project which was viewed as being especially successful in reaching medical and social services providers.

Community-based outreach also proved difficult for the projects. The chaotic lives of the most difficult-to-reach pregnant substance abusers made it very hard to engage them in a meaningful dialogue about the potential harms of substance abuse and the benefits of treatment. One demonstration's quarterly report describes the difficulties of their community-based outreach effort:

"In February we identified 20 substance abusing pregnant women via street outreach by outreach workers, who also provided follow-up to engage the women in case management services via visits to the addresses provided by the women during initial contact. Although attempts to contact them at these addresses and through families and neighbors were unsuccessful, the following information was obtained as a result of intensive efforts: One woman died of a gun shot wound during a crack buy; one died from a drug overdose; two

delivered with no prenatal care; two enrolled in substance abuse programs; three denied drug use when eventually contacted; eleven were "lost to follow-up." Family members/neighbors refused to identify the name of the drug treatment program of two enrollees; the other lost women did not live at the reported addresses. "[administrator]

Community-based outreach staff experienced frequent turnover because of the stress and danger of the job. Outreach workers could be threatened if they were perceived as harming clients in some way. In addition, outreach workers who were from the same community as pregnant substance abusers were reluctant to identify them. Outreach workers often empathized with the problems the women confronted and were reluctant to expose them to possible punishment.

Agency-based outreach used a strategy of educating physicians, other medical providers, and social service providers about the problem of pregnant substance abuse and the services available. This approach was identified by project staff as more promising. Provider education helped providers feel more comfortable identifying pregnant substance abusers and referring them to treatment and other appropriate services. In addition, once providers knew that there was help available for pregnant substance abusers, they were much more willing to identify and refer clients.

3. Screening

In Washington, a uniform screening form was developed along with a set of procedures for fully implementing its use. The brief form was developed from existing instruments (Ewing 1984), and was a cornerstone of the state's project. When a provider using the screening form identified a woman as a pregnant substance abuser or at-risk of being one, there was an attempt to connect the woman immediately with a mobile outreach and assessment worker. These workers carried beepers so that they could be readily contacted by providers. The immediate transition from screening to help was very important to the success of the Washington screening program. Since providers knew

that someone was available to help, project staff felt they were more likely to identify and refer pregnant substance abusers.

Washington also used routine data collection to track the rate of screening by providers. One copy of the screening form was sent to the local state evaluator, who automated the data and tracked the source of screening forms. This information was then used to identify providers who were not systematically using the form so that they could be encouraged to do so. Project staff felt that this approach increased the rate of screening and identification; during the demonstration period the rate of identified women at risk of substance abuse increased from 10 to 15 percent of women who were screened.

While in South Carolina the goal was also to screen all Medicaid-enrolled pregnant women in the project area, it is not clear that this happened systematically since the project did not keep track of the screening forms to identify where screening occurred. (When we requested copies of the screening forms, they could not be identified in either the project files or in the client prenatal care records.) Furthermore, South Carolina's screening questionnaire was longer than Washington's, and the tone of the questions was more severe, which may have made it more difficult to administer or to solicit positive responses to drug use questions. Also, early in the demonstration there was no immediate help offered to providers when they identified a pregnant substance abuser. Later in the demonstration period, however, a trained outreach worker was placed in the community health center where many pregnant substance abusers received their prenatal care. Another factor that made routine screening more difficult to implement in South Carolina was the generally more punitive environment in the state towards pregnant substance abusers. This may have made it more difficult for a questionnaire to be administered in a non-threatening manner.

4. Substance Abuse Treatment and Support Services

The site visits and focus groups also revealed the challenges of providing appropriate substance abuse treatment programs for pregnant women. While encouraging abstinence was the primary goal of all the demonstration-sponsored treatment programs, this was extremely difficult to accomplish. For women in the focus groups, most of whom were in residential treatment, relapse had been a nearly universal problem in their past experiences. The period following delivery was reported as a particularly vulnerable time for relapse.

"Postpartum depression occurs, and she may then go right back. You know that women smoke cigarettes up until they get pregnant, and then stop. After they deliver they're back smoking again. So, that same thing happens with substance-abusing women." [provider]

"Two weeks after I had my kids, I went out and I bought crack. It kept me up for nine hours, completely paranoid, heart racing, feeling like I was going to have a heart attack in front of my babies. When I first started smoking it, it felt so good, but after 20 minutes, it kicked in, and it was a sledgehammer on my mind." [client]

A major challenge was matching appropriate treatment to an individual woman's needs, since there often was no continuum of treatment alternatives at all levels of care. For example, after-care following completion of the initial residential or outpatient intervention was often unavailable. There was general agreement among treatment providers that a short-term program without after-care was insufficient to achieve abstinence.

Treatment programs recognized the critical importance of providing support services to help pregnant women become linked to other appropriate services and to prevent relapse during and after treatment.

"While it's extremely important to help them to deal with their substance-abusing behavior, if you don't deal with those other core issues they will either live minimal lives or they will relapse." [provider]

While all agreed that such services are important, the demonstrations had difficulty reaching and retaining substance abusers in services. For example, Maryland would not sustain consistent participation in support groups, and we found that only three-quarters of women participated in the groups although all were eligible. The staff identified several factors as contributing to poor attendance rates, including women's fear that their children would be taken away as a result of their drug use, the intimidating nature of the Johns Hopkins University institution as a whole, and the difficulty many clients had in establishing trusting relationships with doctors.

In Washington, while the project offered parenting education classes, the proportion of women receiving parenting education was relatively low, except for those in treatment (all of whom received this service). Still, for those who did participate, the clients' response to the classes was reported to be positive, and project staff and Child Protective Service workers noted that project women's relationships with their children appeared to be improving with participation in parenting education.

Case management was also generally viewed as a critical service. However, there was some controversy about the amount and type of social and emotional support that should be provided to pregnant substance abusers. One woman expressed her appreciation for the support she received from program staff, but another expressed her need for a sterner approach.

"They help you to realize your problem. They don't tell you what your problem is. They try to give you opportunities to sit and think and understand what's going on, what caused you to do what you're doing, and what you need to do about it. You don't have to duck, dodge, or hide. You can crawl, you can cry, you can jump, scream, or do whatsoever. And they're always there to tell you that 'we are there for you.' " [client]

"They were too nice, too loving, too caring, and I didn't know how to accept that. I needed somebody to be stern with me. Sometimes, the loving and caring part is OK, but some of us come in here and we take that and roll with it. Everybody doesn't need that loving and caring stuff; I didn't. I needed somebody to be firm with me." [client]

C. REACHING THE TARGET POPULATION

As discussed, through outreach and screening activities the demonstrations attempted to identify pregnant substance abusers in their areas. To gauge the success of these demonstration outreach efforts, we estimated the number of pregnant substance abusers in each demonstration area and compared it with the number of women identified by the demonstration. To estimate the number of pregnant substance abusers in the area, we obtained information on all Medicaid-covered pregnant women in the demonstration areas and identified pregnant substance abusers in that group, using substance abuse diagnosis and procedures codes from Medicaid claims, birth certificates, and state substance abuse treatment files. This algorithm is described in Appendix E. Note that not all pregnant substance abusers were identified—only those represented in one of the three data systems we examined.

The proportion of Medicaid pregnant women identified as substance abusers in the demonstration areas varied by state, ranging from 11.1 percent in Maryland to 5.0 percent in South Carolina (Table II.2). These figures fall within the range of recent studies of the prevalence of substance abuse among pregnant women and among the welfare population (U.S. Department of Health and Human Services 1996a, Grant and Dawson 1996).

We then examined the number of women identified and served by the projects. We adopted each project's definition of "client". In three of the projects, clients were defined as those receiving services from particular providers. In Maryland, women were identified as clients when they entered the Johns Hopkins obstetrics clinic for prenatal care, either identified themselves as a substance abuser or had a positive toxicology screen, and agreed to participate in the study. In Massachusetts, clients were identified when they entered detoxification centers throughout the state and agreed to participate. In New York, clients were those who entered any of the demonstration treatment

TABLE II.2
NUMBER OF MEDICAID DELIVERIES, PREGNANT SUBSTANCE
ABUSERS, AND DEMONSTRATION CLIENTS BY STATE
(Demonstration Area, Demonstration Period)

	Maryland	Massachusetts	New York	South Carolina	Washington
Number of Medicaid Deliveries	2,830	N/A	29,265	2,498	6,799
Number of Pregnant Substance Abusers (PSAs)	315	N/A	3,198	125	463
Percent Pregnant Substance Abusers	11.1	N/A	10.9	5.0	6.8
Demonstration Clients					
PSAs	39	375	274	60	209
Other	11	0	0	14	216
Total	50	375	274	74	425
PSAs Identified by the Demonstrations as a Percent of All PSAs in the Demonstration Area	12.4	N/A	8.6	48.0	45.1

- NOTES: 1. Sources: Medicaid claims, birth certificates, and state substance abuse data.
2. For time periods and study areas, see Figure I.1 and Appendix C.
3. N/A = not available.
4. Pregnant substance abusers (PSAs) are defined using diagnosis and procedure codes from claims, birth certificates and state substance abuse data.
5. "Other Demonstration Clients" includes women for whom we did not find evidence of substance abuse using diagnosis and procedures codes from claims, birth certificates and state substance abuse data. Those women may have been at-risk of use or users who were not detected using our diagnostic algorithm.

programs. (In addition, the six local outreach agencies made direct referrals to treatment programs throughout the state; these women are not identified as clients in the New York database since individual level data on all referrals were not collected.)

In South Carolina and Washington, women were identified as clients more broadly through multiple sources. They were identified using screening procedures, in clinics or other agencies, by outreach workers, or through enrollment in the demonstration substance abuse treatment programs.

In our analyses, we include only clients identified by the demonstrations and for whom we received Medicaid claims linked to demonstration client records. This excludes all women who delivered after 1995 and a few other demonstration clients whose records could not be linked (see Appendix D).

The number of women identified by the demonstrations and present in our analysis files varied greatly by state, from a low of 50 in Maryland to a high of 425 in Washington (see Table II.2). Demonstrations initially established target enrollments for their programs. Massachusetts, New York, and Washington came close to their targets, whereas Maryland and South Carolina did not. Since we could identify only 125 Medicaid pregnant women in South Carolina from claims, birth certificates, and substance abuse records as pregnant substance abusers during the demonstration period, it seems that their original target (over 600 clients) was unreasonably large. Consequently, it appears that Maryland was the only one of the five projects to fall substantially below a reasonable expected enrollment level. Maryland staff attribute this to their study design which restricted enrollment to a single obstetrical clinic, in combination with the growth of Medicaid managed care during the period. As a result of this growth, fewer Medicaid pregnant women used Johns Hopkins for their obstetrical care, limiting the potential enrollees for the demonstration.

Also shown in the table, the demonstration projects reached different numbers, as well as different proportions, of pregnant substance abusers in their demonstration areas. South Carolina and Washington reached almost half, and Maryland and New York reached 12.4 and 8.6 percent, respectively. We included in both the numerator and denominator of these calculations only those pregnant substance abusers meeting the criteria in our diagnostic algorithm.³

In Washington, about half of the women identified through screening were not, according to our algorithm, pregnant substance abusers. This reflects the project's efforts to screen very broadly. Apparently a large number of women they identified as at-risk of substance abuse, using their screening form, were not identified in our data sources because they were not detected as serious abusers by those coding the claims or birth certificates.

1. Demographic Characteristics of the Target Population

Before examining the characteristics of demonstration clients, it is important to examine the characteristics of women they sought to help--the full population of pregnant substance abusers in their target area. Most of this target population of Medicaid pregnant substance abusers were in their 20s, already had children, and were unmarried (Table II.3). About half had not completed high school. In Maryland, New York, and South Carolina, the majority of the pregnant substance abusers were African American. In Washington, where race/ethnicity differed markedly from other states, about 40 percent were white, about 40 percent were Hispanic, and 20 percent were American Indian. These results suggest how critical it is for treatment programs that address the special needs of pregnant women with other children and that respond to the group's cultural and ethnic diversity.

³Since outreach was not a major component of the Massachusetts demonstration, we did not obtain data for this analysis from that state. State staff have indicated, however, that they recruited about half of the Medicaid pregnant women in Massachusetts detoxification facilities to participate in the project.

TABLE II.3

DEMOGRAPHIC CHARACTERISTICS OF THE TARGET POPULATION (MEDICAID PREGNANT
SUBSTANCE ABUSERS) AND OF OTHER MEDICAID PREGNANT WOMEN
(Demonstration Area, Demonstration Period)

Characteristic	Maryland		New York		South Carolina		Washington	
	Pregnant Substance Abusers	Other Medicaid Pregnant Women	Pregnant Substance Abusers	Other Medicaid Pregnant Women	Pregnant Substance Abusers	Other Medicaid Pregnant Women	Pregnant Substance Abusers	Other Medicaid Pregnant Women
Number of Pregnant Women	315	2,515	3,198	26,067	125	2,373	463	6,336
Age								
Percent Age 18 and Below	0.6	16.0	7.7	16.2	10.6	21.4	23.6	15.3
Mean Age	27.8	23.8	28.0	24.8	25.7	22.8	23.6	24.1
Education								
Percent Less than High School Education	49.5	44.5	47.5	40.9	39.0	30.7	66.4	68.7
First Pregnancy								
Percent First Pregnancy	10.2	30.1	18.6	37.9	20.3	40.4	31.8	31.7
Marital Status								
Percent Unmarried	89.2	84.5	90.1	79.5	74.0	69.7	71.7	43.7
Race/Ethnicity								
Percent White, Non-Hispanic	8.6	19.4	3.6	4.2	19.5	20.3	38.2	21.8
Percent African American, Non-Hispanic	91.1	77.7	64.0	53.2	80.5	78.6	2.8	0.6
Percent Hispanic	0.0	1.0	20.4	36.5	0.0	0.5	38.2	71.6
Percent American Indian	0.3	0.8	0.4	0.2	0.0	0.0	20.1	5.3

- NOTES: 1. Source: birth certificates
 2. Data not available for Massachusetts.
 3. For definitions of time periods and study areas, see Figure I.1 and Appendix C.
 4. Pregnant substance abusers (PSAs) are defined using diagnosis and procedure codes from claims, birth certificates and state substance abuse data.

Substance abusers differed from other Medicaid-covered pregnant women in age, education, and parity. Compared with other Medicaid pregnant women, pregnant substance abusers were older, less educated and less likely to be having their first child. Washington was an exception to this pattern. There, pregnant substance abusers did not differ markedly from other pregnant women enrolled in Medicaid in these characteristics, although they did differ in terms of marital status. These, as in other states pregnant substance abusers were less likely to be married than other pregnant women.

Racial and ethnic characteristics of pregnant substance abusers also varied from those of other Medicaid pregnant women. Pregnant substance abusers were more likely to be African American and less likely to be Hispanic. In Washington, pregnant substance abusers were also more likely to be American Indian.

2. Characteristics of Demonstration Clients

The characteristics of demonstration clients differed substantially from state-to-state, as shown in Table II.4. In Maryland, Massachusetts, and New York, clients were older on average (mean age of almost 30) and very few were having their first pregnancy, when compared with South Carolina and Washington. This shows that the demonstrations whose clients were primarily self-identified as substance abusers served an older, and probably more severely addicted, population. The two states which used broader outreach and screening approaches, and which identified and served a larger proportion of pregnant substance abusers, also served a younger population. We would expect that such clients were probably earlier, on average, in their addiction process.

Just as pregnant substance abusers differed from other Medicaid pregnant women, demonstration clients differed somewhat from other substance abusers (Tables II.3 and II.4), although differences were not very pronounced. In particular, in New York and Washington, the

TABLE II.4
CHARACTERISTICS OF DEMONSTRATION CLIENTS
(Demonstration Area, Demonstration Period)

Characteristics	Maryland	Massachusetts	New York	South Carolina	Washington
Number of Clients	50	375	274	74	425
Age					
Percent Age 18 and Below	2.0	1.6	7.3	12.3	26.4
Mean Age	28.3	27.5	28.1	25.2	23.0
Education					
Percent Less than High School Education	52.4	50.9	59.2	41.1	61.9
First Pregnancy					
Percent First Pregnancy	14.0	8.8	12.6	20.5	37.4
Marital Status					
Percent Unmarried	88.0	86.1	94.4	71.2	70.1
Race/Ethnicity					
Percent White, Non-Hispanic	8.0	42.1	5.8	15.1	44.2
Percent African American, Non-Hispanic	92.0	36.3	58.6	84.9	2.8
Percent Hispanic	0.0	19.7	24.9	0.0	32.2
Percent American Indian	0.0	0.0	0.0	0.0	20.1

NOTES: 1. Source: birth certificates.

2. For definitions of time periods and study areas, see Figure I.1 and Appendix C.

women identified by the demonstration were somewhat more likely to be white than other pregnant substance abusers in the area, and in South Carolina they were less likely to be so.

Since the characteristics of women identified by the demonstrations were generally similar to other pregnant substance abusers, we conclude that the demonstrations did not attract a select subgroup of pregnant substance abusers, as defined by conventional demographic characteristics. However, the women may well have differed in terms of characteristics not reflected in our data, such as the motivation to address their substance abuse problems.

Because treatment models may differ according to the types of substance used, we wanted to have information on the primary substance of demonstration clients and other pregnant substance abusers. Unfortunately we only obtained that data for a select group of clients, primarily those in state substance abuse treatment facilities, except in Maryland and Massachusetts where we had data from their ASI surveys. As shown in Table II.5, cocaine (including crack) use was the dominant problem in four of the states (Maryland, Massachusetts, New York, and South Carolina). In Washington the most frequent problem was alcohol use (generally in combination with other drugs), but cocaine use was also prominent. Two states (Maryland and Massachusetts) served a relatively high proportion of women with heroin abuse problems.

D. DEMONSTRATION SUBSTANCE ABUSE TREATMENT AND SUPPORT SERVICES

1. Substance Abuse Treatment

Substance abuse treatment services were the core services provided by four of the five projects. The rate of substance abuse treatment for demonstration clients was generally high, with one exception (Washington), as shown in Table II.6. The design of the demonstrations, and their definition of client as outlined above, led to this variation in the rate of treatment. In Massachusetts

TABLE II.5

PRIMARY SUBSTANCES USED BY DEMONSTRATION CLIENTS
(Demonstration Area/Demonstration Period)

Primary Substance	Maryland (%)	Massachusetts (%)	New York (%)	South Carolina (%)	Washington (%)
Number of Clients²	39	360	213	46	72
Alcohol	0.0	9.7	5.2	10.9	47.2
Heroin	46.2	23.3	6.6	0.0	2.8
Cocaine (including Crack)	53.8	57.8	70.4	82.6	40.3
Marijuana	0.0	9.2	15.0	4.4	5.6
Other	0.0	0.0	2.8	0.0	4.2
Total	100.0	100.0	100.0	100.0	100.0

- NOTES:
1. Sources: State substance abuse treatment files and Addiction Severity Index (Maryland and Massachusetts).
 2. Data are only available for a subset of clients.
 3. The substance reported as the "primary" problem is shown here. Often more than one substance was reported. In particular, those with alcohol as a primary problem generally had secondary drug use.

and New York, 100 percent of demonstration clients received substance abuse treatment, because clients in these states were identified in treatment facilities. In Maryland and South Carolina, a high proportion of clients also received treatment, 88.0 percent and 71.6 percent respectively.

In Washington, however, only 26.1 percent of demonstration clients received treatment. What appears to be a very low treatment rate for pregnant substance abusers is an artifact of the demonstration design. As shown earlier in Table II.2, about 50 percent of the women identified by Washington were not pregnant substance abusers according to our diagnostic and procedure code algorithm. When we used this algorithm to identify only pregnant substance abusers, we found that 53.1 percent of such women received treatment in Washington (data not shown). Consequently, many of the clients identified in Washington as "at-risk" of substance abuse, may not have been abusing any substances or may not have needed treatment for their problems.

Demonstration clients could receive substance abuse treatment directly from demonstration-sponsored treatment providers or from other treatment providers.⁴ Most who received treatment were served by demonstration providers but many also received treatment from other providers. For example, as shown in Table II.6, in New York, although all received treatment from demonstration-sponsored providers, 50.0 percent also received treatment from other providers.

To develop an understanding of the variety of types of treatment being provided to demonstration clients, we examined codes in the Medicaid claims and state treatment records to identify those types of treatment. It was a complicated task to uniformly categorize types of treatment across states and to make the categories uniform between the two data sources (Medicaid

⁴A list of demonstration treatment programs and their characteristics is provided in Appendix F. We do not have detailed information on characteristics of other providers of treatment for demonstration clients.

TABLE II.6
 PRENATAL SUBSTANCE ABUSE TREATMENT RECEIVED
 BY DEMONSTRATION CLIENTS
 (Demonstration Area, Demonstration Period)

Characteristic	Maryland	Mass.	New York	South Carolina	Washington
Number of Clients	50	375	274	74	425
Number with Any Treatment	44	375	274	53	111
Percent with Any Treatment	88.0	100.0	100.0	71.6	26.1
Percent with Demonstration- Sponsored Treatment	0.0	100.0	100.0	68.9	19.1
Percent with Other Treatment	88.0	0.0	50.0 ³	29.7 ³	23.1 ³

- NOTES:
1. Sources: Medicaid claims and state substance abuse treatment files.
 2. For definitions of time periods and study areas, see Figure I.1 and Appendix C.
 3. Some clients received both demonstration-sponsored and other treatment.

claims and state treatment records). Table II.7 shows the treatment categories we used: (1) detoxification, (2) short-term residential, (3) long-term residential, (4) methadone, (5) least intensive outpatient, (6) moderately intensive outpatient, (7) most intensive outpatient, and (8) "other" (informal treatment). How these categories were defined varied somewhat by states and data source, as shown in the table.

The resulting data in Table II.8 show that demonstration clients received a greater variety of treatment and received more intensive types of treatment than other pregnant substance abusers in demonstration areas. For example, a higher proportion of demonstration clients in all states received residential treatment than other pregnant substance abusers. They also were more likely to receive outpatient treatment, but most often they received the least intensive type of outpatient treatment.

The patterns in type of treatment varied greatly across states. For example, detoxification (as defined by residential stays less than or equal to 14 days) was used by all demonstration clients in Massachusetts (since clients were identified in detox facilities), but in other states a much lower proportion received such services, from 15.1 percent of demonstration clients in South Carolina to 33.3 percent in Washington.

We defined a category labeled "other" treatment which included all ambulatory care (excluding dental and pharmacy services) that had a substance abuse diagnosis on the claim. While it is possible that pregnant substance abusers went to ambulatory providers for reasons other than their substance abuse, the fact that it was recorded on the claim means that the provider recognized the problem and perhaps provided services, advice, or referrals to address the problem. From 13.2 percent of demonstration clients in South Carolina to 46.4 percent in Massachusetts had such services. An even larger percentage of other (nondemonstration) pregnant substance abusers received this type of informal treatment.

TABLE II.7
DEFINITIONS OF TREATMENT CATEGORIES
BY DATA SOURCE

Treatment Category	Data Source	
	Medicaid Data	State Substance Abuse Treatment Data
Detoxification	Stays of less than or equal to 14 days, as identified by Diagnostic Related Groups (DRGs), procedure codes, and provider types	Stays of less than or equal to 14 days, as identified by state treatment codes
Short-Term Residential	Stays of more than 14 and less than or equal to 30 days, as identified by DRGs, procedure codes, and provider types	Stays of less than or equal to 30 days, as identified by state treatment codes
Long-Term Residential	All residential stays for substance abuse treatment more than 30 days	All residential stays more than 30 days
Methadone	State procedure codes and provider types	State treatment codes
Least Intensive Outpatient	Treatment during month does not exceed one day per week as identified by state procedure codes and provider types	State treatment codes for routine outpatient treatment
Moderately Intensive Outpatient	All treatment not in the "least intensive" or "most intensive" category as identified by state procedure and provider codes	None
Most Intensive Outpatient	Treatment for four or more days during at least one week in a month as identified by state procedure and provider codes	State treatment codes for intensive outpatient treatment
Other	All ambulatory care (excluding dental and pharmacy) that had a substance abuse diagnosis on the claim. Excludes any treatment above.	None

TABLE II.8

TYPE OF SUBSTANCE ABUSE TREATMENT RECEIVED IN THE PRENATAL AND POSTPARTUM PERIODS BY DEMONSTRATION CLIENTS AND OTHER PREGNANT SUBSTANCE ABUSERS
(Demonstration Area/Demonstration Period)

Type of Treatment	Massachusetts	New York		South Carolina		Washington	
	Demonstration Clients	Demonstration Clients	Other Pregnant Substance Abusers	Demonstration Clients	Other Pregnant Substance Abusers	Demonstration Clients	Other Pregnant Substance Abusers
Number of Women with Prenatal Treatment	375	274	1,096	53	13	111	51
Average Number of Types of Treatment	3.1	2.2	1.7	2.1	1.1	2.6	1.5
Percent Receiving Each Type of Treatment							
Detoxification	100.0	16.1	21.9	15.1	0.0	33.3	0.0
Residential	52.8	44.5	12.5	22.6	7.7	64.0	14.6
Short-Term Residential	35.2	38.7	9.3	9.4	0.0	59.5	14.6
Long-Term Residential	28.5	26.6	3.5	13.2	7.7	27.9	1.8
Methadone	24.0	2.9	18.0	0.0	0.0	2.7	5.5
Outpatient	53.9	74.1	54.6	100.0	53.9	82.9	76.4
Least Intensive Outpatient	46.9	63.1	46.2	73.6	46.2	77.5	61.8
Moderate Intensive Outpatient	21.6	29.9	17.4	54.7	7.7	15.3	7.3
Most Intensive Outpatient	7.2	19.3	15.4	24.5	7.7	18.0	23.6
Other (Informal "Treatment")	46.4	21.2	39.8	13.2	38.5	20.7	32.7

- NOTE: 1. Sources: Medicaid claims and state substance abuse treatment data.
2. For definitions of time periods and study areas, see Figure 1.1 and Appendix C.
3. Maryland is excluded because its demonstration model did not include formal treatment.
4. For the definition of treatment categories see Table II.7.
5. Percents do not sum to 100 because women could receive more than one type of treatment.

Demonstration clients and other pregnant substance abusers who received treatment very often received more than one type of treatment (see Table II.8). In Massachusetts and Washington, for example, demonstration clients received an average of about three different types of treatment during the 15-month prenatal/postnatal period. The average was about two types of treatment for demonstration clients in New York and South Carolina. In all states, women in the demonstrations received more different types of treatment than other pregnant substance abusers in the demonstration areas.

In summary, there was great variation across states, and between demonstration clients and other pregnant substance abusers, in the types of substance abuse treatment received during the demonstration period. Demonstration clients received more intensive types of treatment and a larger number of different treatments, creating the possibility for improved treatment outcomes among this group.

2. Support Services

In addition to the substance abuse treatment services provided to demonstration clients, in three of the states (Maryland, South Carolina, and Washington) the demonstrations also provided other support services to encourage retention in treatment and use of prenatal care (Table II.9). We might expect improved retention in treatment and higher use of prenatal care in the three demonstration where support services were provided to most clients.

The large majority of clients received demonstration-sponsored case management and support group services in the three states that offered them. Only about 10-15 percent of demonstration clients received case management services from the Medicaid program in Massachusetts and New York. In these states demonstration clients may have received case management services in

TABLE II.9
SUPPORT SERVICES RECEIVED BY DEMONSTRATION CLIENTS
(Demonstration Area, Demonstration Period)

Services Received	Number of Women Eligible for Service	Percent with Service	Average Number of Months with Services for Those Receiving Services
MARYLAND			
Case Management			
Demonstration-Sponsored	30	100.0	7.2
Nondemonstration-Sponsored	50	68.0	6.7
Support Groups (Demonstration-Sponsored)	50	74.0	3.5
MASSACHUSETTS			
Case Management (Nondemonstration-Sponsored)	375	14.7	3.3
NEW YORK			
Case Management (Nondemonstration-Sponsored)	274	10.9	4.8
SOUTH CAROLINA			
Case Management (Demonstration-Sponsored)	74	96.6	3.4
WASHINGTON			
Case Management (Demonstration-Sponsored)	425	62.8	5.2
Parenting Education (Demonstration-Sponsored)	425	27.5	N/A

- NOTES: 1. Sources: Medicaid claims, birth certificates and demonstration program files.
2. For definitions of time periods and study areas, see Figure I.1 and Appendix C.
3. N/A: not available.
4. Support services provided directly by demonstration substance abuse treatment programs are not included, when the programs did not bill Medicaid separately for those services.

demonstration treatment facilities, but the programs did not bill for these services separately so we could not identify them.

As discussed earlier, the demonstrations experienced some difficulties drawing women into some of the support services they offered, especially when they were not part of a treatment program. In Maryland, only 74 percent of clients participated in support groups for an average of 3 months of their pregnancy and in Washington, 27.5 percent received parenting education, even though all clients were eligible for these services. While the demonstration models in New York and South Carolina also included support services, generally as a part of formal treatment programs, a lack of individual-level data prevented us from reporting on the use of those services.

E. SUMMARY

These findings from the implementation analysis have shown that the HCFA Demonstrations to Improve Access to Care for Pregnant Substance Abusers provided a range of outreach, substance abuse treatment, and support services to serve this very high-risk population. They identified and served from 9 to 48 percent of the pregnant substance abusers in their target areas using a variety of outreach strategies. Most demonstration clients received substance abuse treatment and in three states a majority received other support services. The substance abuse treatment that was provided to demonstration clients was at higher levels of care (e.g., residential care) than that given to other pregnant substance abusers.

Given these findings, it is reasonable to expect that we might observe the following for demonstration clients:

- Improved rates of prenatal care use and earlier prenatal care
- Longer stays in treatment
- Higher rates of abstinence during pregnancy
- Infants with higher birthweights

In addition, Medicaid expenditures for the demonstration clients might be lower because of improved birth outcomes. On the other hand, Medicaid expenditures may have increased because of the additional services provided to demonstration clients. The following chapter shows such outcomes for demonstration clients and compares them to those of other pregnant substance abusers.

III. OUTCOMES

In this chapter, we examine the outcomes for pregnant substance abusers in the demonstration areas as well as the variation and interrelations among those outcomes. We pay particular attention to the variation across several subgroups of pregnant substance abusers:¹

- Pregnant substance abusers who were enrolled in the demonstration programs
- Pregnant substance abusers who did not enroll
- Pregnant substance abusers who entered treatment programs sponsored by the demonstrations, and who had differing intensities of treatment

We augment this analysis of pregnant substance abusers in the demonstration areas with an analysis that compares those women with similar women in comparison areas. This area-wide analysis enables us to assess whether the demonstration activities affected the general level or variation of key outcomes for pregnant substance abusers in the two areas. By comparing all pregnant substance abusers in both areas, the analysis examines the demonstration activities as a whole. It aggregates the effects of participation with the effects of any particular service on those women who participate.

¹We attempted to create an additional comparison group in two of the states, South Carolina and Washington, by interviewing pregnant women in clinics outside the demonstration areas and asking about their substance use. While this survey yielded valuable data on substance use among the Medicaid population (Howell et al. 1996), it was not possible to use the data in the outcomes analysis in this report. We identified only 28 pregnant substance abusers in South Carolina and 28 in Washington who could be linked to our analysis files. (Others delivered during 1995.)

Our descriptive analysis of outcomes is limited in several major ways:

- Random assignment was not used, either for pregnant substance abusers who received demonstration services or for selecting the demonstration areas.² Consequently, differences in outcomes cannot be construed as definitive impacts. It is always possible that the groups that were compared differed in unmeasured ways that led to differences in the outcomes observed.
- We are not able to make all comparisons in all states because of limitations in the data, because of the demonstration design, or both. In particular, we have very limited information on substance use during pregnancy, which is the behavior targeted by the demonstration.
- The number of measures we can examine is limited by the time frame of the evaluation and data availability. Other important outcomes, such as foster care use and child development, cannot be examined.
- Given the generally modest rates at which the demonstrations enrolled eligible women, area-wide analysis could fail to detect positive effects on those women who actually participated in specific demonstration services.

A. OUTCOMES FOR DEMONSTRATION CLIENTS

1. Prenatal Care Use

Early, high-quality prenatal care is considered to be critical to improving birth outcomes for high-risk women, such as pregnant substance abusers. While prenatal care was not provided directly by demonstration projects, they did seek to facilitate the use of prenatal care through improved interorganizational linkages, outreach, and case management. Table III.1 presents measures of prenatal care use for demonstration clients, other pregnant substance abusers who live in the demonstration areas, and all other Medicaid pregnant women during the demonstration period. The four measures of prenatal care listed in the table are derived from birth certificates, as follows:

²Random assignment was used in a very limited way in the Maryland project to assign women to either case management or no case management. Sample sizes in that demonstration are too small to contrast the outcomes for those two groups.

TABLE III.1

PRENATAL CARE USE BY DEMONSTRATION CLIENTS AND OTHER
PREGNANT WOMEN ENROLLED IN MEDICAID
(Demonstration Area, Demonstration Period)

Measures of Prenatal Care	Demonstration Clients		Other Pregnant Substance Abusers	Other Medicaid Pregnant Women
	With Demonstration SA Treatment	With Other SA Treatment		
MARYLAND				
Number of Women	--	50	277	2,504
Percent with No Prenatal Care	--	0.0*	11.6	4.1
Percent with Early Prenatal Care	--	66.7*	43.9	74.6
Percent with Late Prenatal Care	--	8.3	13.4	3.7
Percent with Adequate Prenatal Care	--	58.8	40.9	68.4
MASSACHUSETTS				
Number of Women	375	0	N/A	N/A
Percent with No Prenatal Care	1.9	--	--	--
Percent with Early Prenatal Care	52.6	--	--	--
Percent with Late Prenatal Care	11.0	--	--	--
Percent with Adequate Prenatal Care	50.0	--	--	--
NEW YORK				
Number of Women	274	0	3,108	26,067
Percent with No Prenatal Care	4.7*	--	14.9	3.0
Percent with Early Prenatal Care	36.1	--	35.6	47.6
Percent with Late Prenatal Care	19.3	--	14.9	11.6
Percent with Adequate Prenatal Care	25.4	--	30.9	44.4
SOUTH CAROLINA				
Number of Women	51	23	65	2,360
Percent with No Prenatal Care	4.0	4.3	4.8	1.4
Percent with Early Prenatal Care	48.0	47.8	62.9	61.1
Percent with Late Prenatal Care	6.0	8.7	8.1	5.3
Percent with Adequate Prenatal Care	54.0	34.8	50.0	61.7
WASHINGTON				
Number of Women	81	344	270	6,141
Percent with No Prenatal Care	1.2*	0.9*	8.3	1.3
Percent with Early Prenatal Care	63.8	72.5	69.3	68.6
Percent with Late Prenatal Care	13.8	5.4	6.5	5.6
Percent with Adequate Prenatal Care	39.5	49.4	48.0	48.1

- NOTES: 1. Birth certificates.
 2. For definitions of time periods and study areas, see Figure I.1 and Appendix C.
 3. *Estimate for demonstration clients is significantly different from other pregnant substance abusers at the .05 level, two-tailed test.
 4. N/A = Not Available; SA = Substance Abuse

- The percent of women who had no prenatal care. All women should have some care.
- The percent of women with early care, defined as care in the first trimester of pregnancy. All pregnant women, especially high-risk women, should have such early care. Nationally, 80.2 percent of pregnant women received early care in 1994. (U.S. National Center for Health Statistics, 1997))
- The percent of women with late care, defined as care only in the last trimester. Initiating care late minimizes the chances that a pregnant woman's substance abuse problems can be identified and treated.
- The percent of women with adequate or adequate plus care using the Kotelchuck Index (Kotelchuck 1994). This index summarizes the timing of the first visit and the number of subsequent visits.

Given what we know about the demonstration programs, we might expect higher use of prenatal care among demonstration clients. Based on one measure of prenatal care use (the proportion with no prenatal care), our analysis shows that demonstration clients had better prenatal care experience than other pregnant substance abusers, although these differences were not always statistically significant (Table III.1).³ Since in three of the states (Maryland, South Carolina, and Washington) the demonstrations targeted women in prenatal care settings (especially in Maryland), it is not surprising that demonstration clients in those states had a higher use of prenatal care.

We might also expect demonstration clients to receive earlier, prenatal care, and more visits. The findings for these measures are not consistent across states, and, for the most part, differences in these measures between demonstration clients and other pregnant substance abusers are not statistically significant.

³Asterisks in the tables are used to highlight statistically significant differences. While data presented in this report are from the universe of clients and other Medicaid pregnant women, the significance tests are used to highlight findings that are more likely to reflect a consistent finding over time, rather than one-time unique events in small populations.

Overall, although higher proportions of demonstration clients received some prenatal care compared with other pregnant substance abusers, the data do not suggest dramatic improvements in prenatal care use, especially in the receipt of early and adequate prenatal care. Additionally, in all states, demonstration clients lagged behind the general Medicaid population in the receipt of early and adequate prenatal care, and the Medicaid population itself lagged behind the full U.S. population.

2. Length and Intensity of Substance Abuse Treatment

Research has shown that those who remain in substance abuse treatment longer have better outcomes, such as reduced substance use, reduced criminal activity, and increased employment (Stevens and Arbiter 1995). Also, more intensive forms of treatment are expected to improve outcomes (Marques, et al. 1995). We examined the length of substance abuse treatment for demonstration clients and other pregnant substance abusers to see whether those receiving demonstration services stayed longer in treatment than other pregnant substance abusers receiving treatment.

To measure the length of treatment, we calculated the average number of months of any substance abuse treatment of any type during the nine months before and the six months after delivery. During these "treatment months," women received at least one treatment "service," although the intensity of services could be low (such as a single outpatient visit). We included postnatal substance abuse treatment because a treatment episode might begin during, but continue beyond, pregnancy. Table III.2 presents findings on the length and continuity of treatment during the prenatal and postnatal period for all women who had some prenatal substance abuse treatment.

TABLE III.2

LENGTH OF PRENATAL AND POSTNATAL SUBSTANCE ABUSE
TREATMENT FOR DEMONSTRATION CLIENTS AND OTHER
PREGNANT SUBSTANCE ABUSERS
(Demonstration Area, Demonstration Period)

Measures of Length of Treatment	Demonstration Clients with Prenatal SA Treatment		Other Pregnant Substance Abusers with Prenatal SA Treatment
	With Demonstration SA Treatment	With Other SA Treatment	
MASSACHUSETTS			
Number with Prenatal Treatment	375	0	N/A
Average Number of Treatment Months	8.3	--	--
Average Number of Episodes	1.8	--	--
Average Length of Treatment per Episode	4.7	--	--
NEW YORK			
Number with Prenatal Treatment	274	0	1,096
Average Number of Treatment Months	8.4*	--	6.3
Average Number of Episodes	1.7	--	1.6
Average Length of Treatment per Episode	5.0*	--	4.0
SOUTH CAROLINA			
Number with Prenatal Treatment	51	2	13
Average Number of Treatment Months	5.9	7.0*	3.8
Average Number of Episodes	1.2*	2.0	1.0
Average Length of Treatment per Episode	4.8	3.5	3.8
WASHINGTON			
Number with Prenatal Treatment	81	30	55
Average Number of Treatment Months	6.8*	3.6	3.4
Average Number of Episodes	1.4	1.3	1.4
Average Length of Treatment per Episode	4.8*	2.8	2.4

- NOTES:
1. Sources: Medicaid claims and state substance abuse treatment files.
 2. For definitions of time periods and study areas, see Figure I.1 and Appendix C.
 3. N/A = Not Available, SA = Substance Abuse.
 4. *: Significantly different from other pregnant substance abusers at the .05 level, two-tailed test.
 5. The average number of episodes times the average length of treatment per episode does not equal the average number of treatment months due to rounding errors.

The average length of any treatment for demonstration clients with some demonstration-sponsored treatment ranged from 5.9 months in South Carolina to 8.4 months in New York.⁴ Demonstration clients in demonstration treatment in New York and Washington had significantly more months of treatment than other pregnant substance abusers with any prenatal substance abuse treatment.

Treatment may be continuous, in which case it is received regularly and systematically with no break, or episodic, in which case it is interrupted for some period of time. Ideally, treatment would be continuous, possibly beginning with detoxification, followed by an intensive form of treatment (either residential or intensive outpatient), followed by a less intensive form of outpatient treatment, such as aftercare. To assess the degree to which women received continuous treatment, we examined the number of their "treatment episodes." A treatment episode was defined as one or more contiguous months during the prenatal or postnatal period in which a women received some substance abuse treatment.

Table III.2 shows that, while demonstration clients and other pregnant substance abusers both had some episodic care, the episodes were significantly longer for demonstration clients. Demonstration clients and other pregnant substance abusers had, on average, between one and two treatment episodes during the relatively short prenatal and postnatal period. However, the average length of each treatment episode was significantly longer for women with demonstration-sponsored treatment in New York and Washington.

In addition to the fact that demonstration clients stayed longer in treatment, they were more likely to receive treatment in more intensive levels, including residential and intensive outpatient treatment as shown earlier in Table II.8. We combined information on the length and level of

⁴Since Maryland did not sponsor treatment, it is excluded from our discussion.

treatment to develop a typology of “intensity” of treatment. We confined this analysis to treatment during the prenatal period, the time during which treatment is most likely to affect birth outcomes. The three groups of prenatal treatment intensity are:

- **Minimal:** Any treatment delivered in only one month of pregnancy.
- **Moderate:** Any treatment delivered for two months of pregnancy and non-intensive treatment delivered for more than two months of pregnancy. Non-intensive treatment includes non-residential treatment and non-intensive outpatient treatment.
- **Intensive:** Residential or intensive outpatient treatment received for three or more continuous months.

A majority of demonstration clients did not receive intensive substance abuse treatment during pregnancy (Table III.3). About 20 percent of demonstration clients in demonstration-sponsored treatment in Massachusetts and South Carolina received intensive treatment (Table III.3). In New York, 30.3 percent of clients received intensive treatment, a rate significantly higher than for other pregnant substance abusers in treatment (7.9 percent). In Washington, which offered both short-term and long-term demonstration-sponsored residential treatment, the highest proportion (39.5 percent) of clients in demonstration-sponsored treatment received intensive treatment, which compares with only 18.2 percent for other pregnant substance abusers in treatment in the demonstration area.

The demonstrations were designed to form a linkage between prenatal care and substance abuse treatment. For optimum improvement in birth outcomes, pregnant substance abusers would receive both adequate prenatal care and intensive substance abuse treatment during the prenatal period. We examined the proportion of demonstration women who received both.

TABLE III.3

**INTENSITY OF PRENATAL SUBSTANCE ABUSE TREATMENT FOR
DEMONSTRATION CLIENTS AND OTHER PREGNANT SUBSTANCE ABUSERS
(Demonstration Area, Demonstration Period)**

Measures of Treatment Intensity	Demonstration Clients with SA Treatment		Other Pregnant Substance Abusers with SA Treatment
	With Demonstration SA Treatment	Other SA Treatment	
MASSACHUSETTS			
Number with Treatment	375	0	N/A
Percent with Minimal Treatment	14.1	--	--
Percent with Moderate Treatment	65.1	--	--
Percent with Intensive Treatment	20.8	--	--
Percent with Intensive Treatment and Adequate Prenatal Care	8.8	--	--
NEW YORK			
Number with Treatment	274	0	1,096
Percent with Minimal Treatment	9.9*	--	30.3
Percent with Moderate Treatment	59.9*	--	61.8
Percent with Intensive Treatment	30.3*	--	7.9
Percent with Intensive Treatment and Adequate Prenatal Care	5.8*	--	2.7
SOUTH CAROLINA			
Number with Treatment	51	2	13
Percent with Minimal Treatment	37.3	50.0	53.8
Percent with Moderate Treatment	43.1	50.0	30.8
Percent with Intensive Treatment	19.6	0.0	15.4
Percent with Intensive Treatment and Adequate Prenatal Care	5.9	0.0	15.4
WASHINGTON			
Number with Treatment	81	30	55
Percent with Minimal Treatment	13.6*	56.7	52.7
Percent with Moderate Treatment	46.9*	40.0	29.1
Percent with Intensive Treatment	39.5*	3.3*	18.2
Percent with Intensive Treatment and Adequate Prenatal Care	12.3	0.0	5.5

- NOTES:
1. Source: Medicaid claims, birth certificates, and state substance abuse treatment files.
 2. For definitions of time periods and study areas, see Figure I.1 and Appendix C.
 3. N/A = Not Available, SA = Substance Abuse.
 4. *: Significantly different from other pregnant substance abusers at the .05 level, two-tailed test.

As shown in Table III.3, the proportion of demonstration clients with treatment receiving both adequate prenatal care and intensive substance abuse treatment was very small, varying from a low of 5.8 percent in New York to a high of 12.3 percent in Washington. Massachusetts and South Carolina fell within this range. In New York, this proportion was significantly higher than for other pregnant substance abusers in the demonstration area. Still, this lack of necessary services for many demonstration clients raises questions about whether and how the demonstration could have affected birth outcomes.

3. Substance Use During Pregnancy

Substance use during pregnancy is one of the most important interim outcomes of the demonstrations. Unfortunately, we had great difficulty developing a complete and accurate measure of this outcome.⁵ Ideally, we would have had periodic measures of substance use throughout pregnancy for all demonstration clients and other pregnant substance abusers. However, there was little data on substance use in the program records we received. We did obtain point-in-time measures of substance use at or near the time of delivery for a subset of demonstration clients, as shown in Table III.4. Both Maryland and Massachusetts collected data periodically from their clients using the Addiction Severity Index (ASI) survey instrument. The ASI follow-up survey was administered to the subset of clients who could be found and interviewed after delivery. We included in this analysis only those interviewed within three months of delivery (78 percent of clients in Maryland and 48 percent in Massachusetts). The data include responses to the question: "On how many days of the past 30 days have you used one of the following drugs?", asked for a list

⁵See an earlier report (Howell et al. 1997) for a discussion of our unsuccessful attempts to collect urine toxicology results in Massachusetts and Washington.

TABLE III.4
ABSTINENCE FROM DRUG USE NEAR DELIVERY
AMONG DEMONSTRATION CLIENTS

State	Abstinence Near Delivery			Percent Abstinent
	Abstinent	Not Abstinent	Total	
Maryland	11	26	39	28.2
Massachusetts	129	52	181	71.3
South Carolina	32	22	54	59.3

- NOTES:
1. Data for Maryland and Massachusetts are measured by responses to the question, "Did you use one or more of the following drugs in the last 30 days?" All those interviewed within three months of delivery are included.
 2. Data for South Carolina are from urine toxicology at delivery.
 3. Those with readmission to substance abuse treatment within three months of delivery are counted as not abstinent.
 4. Data for New York and Washington are not available.

of illicit drugs. In South Carolina, urine toxicology results were available at delivery for 54 women (73 percent of clients).

The percent of clients who were abstinent at or near the time of delivery ranged widely, from 28.2 percent in Maryland to 59.3 percent in South Carolina to 71.3 percent in Massachusetts. The differences in these estimates could be a result of reporting differences, so they should be viewed with caution. In particular, self-reported drug use (the measure available in Maryland and Massachusetts) is subject to reporting bias (U.S. Department of Health and Human Services 1996a), and urine toxicology tests measure drug use only within a few days of delivery. Also, since data were only available for 48 percent of Massachusetts clients, this may represent a biased sample with higher abstinence rates than the full population. With these caveats in mind, it appears that a sizeable proportion of clients was not able to achieve abstinence, especially in Maryland. This may have been due to the Maryland support group demonstration model, which did not insist on abstinence as a requirement for participation, as do most treatment programs. In Massachusetts, abstinence was more common, possibly due to the higher intensity of treatment services there.

4. Birthweight

A major goal of the demonstrations was to improve maternal and infant health. While there are various measures for mental and physical health status that would be useful, we were severely limited by the available data. Since infant birthweight is accurately measured on, and readily available from, birth certificates, we used the following birthweight-related measures to examine health status: percent low birthweight (less than 2,500 grams), percent very low birthweight (less than 1,500 grams), and average (mean) birthweight. Twins were excluded from the analysis because of their naturally small size. The results of this analysis are presented in Table III.5.

TABLE III.5
INFANT BIRTHWEIGHT
(Demonstration Area, Demonstration Period)

Measures of Birthweight	Demonstration Clients		Other Pregnant Substance Abusers	Other Medicaid Pregnant Women
	With Demonstration SA Treatment	With Other SA Treatment		
MARYLAND				
Number of Infants	0	50	277	2,504
Percent Low Birthweight (<2500g)	--	34.0	28.5	12.7
Percent Very Low Birthweight (<1500g)	--	4.0	5.5	2.3
Average Birthweight (grams)	--	2,723	2,749	3,127
MASSACHUSETTS				
Number of Infants	375	0	N/A	N/A
Percent Low Birthweight (<2500g)	19.1	--	--	--
Percent Very Low Birthweight (<1500g)	0.9	--	--	--
Average Birthweight (grams)	2,956	--	--	--
NEW YORK				
Number of Infants	274	0	3,108	26,067
Percent Low Birthweight (<2500g)	12.4*	--	24.9	8.5
Percent Very Low Birthweight (<1500g)	1.9	--	4.2	1.7
Average Birthweight (grams)	3,049*	--	2,879	3,225
SOUTH CAROLINA				
Number of Infants	51	23	65	2,360
Percent Low Birthweight (<2500g)	12.5	21.7	20.6	11.8
Percent Very Low Birthweight (<1500g)	4.2	0.0*	6.3	1.9
Average Birthweight (grams)	3,040	2,907	2,864	3,142
WASHINGTON				
Number of Infants	81	344	270	6,141
Percent Low Birthweight (<2500g)	11.3	7.9	12.5	4.6
Percent Very Low Birthweight (<1500g)	2.5	1.8	3.0	0.7
Average Birthweight (grams)	3,240	3,274*	3,153	3,375

- NOTES: 1. Source: birth certificates.
 2. For definitions of time periods and study areas, see Figure I.1 and Appendix C.
 3. N/A = Not Available, SA = Substance Abuse.
 4. *: Estimate for demonstration clients is significantly different from other pregnant substance abusers at the .05 level, two-tailed test.
 5. Twins are excluded.
 6. Records with birthweight less than 400 grams or greater than 6,000 grams are excluded.

The first and most striking finding is that there were very high rates of low and very low birthweight among all Medicaid groups, compared to national estimates. In particular, birthweights for infants of pregnant substance abusers, regardless of the mothers' demonstration status, were very low. For example, fully 34.0 percent of demonstration clients in Maryland gave birth to low birthweight infants. This compares to a national low birthweight rate of 7.3 percent in 1993-5 (U.S. National Center for Health Statistics 1997). Among women receiving demonstration-sponsored substance abuse treatment, the percent giving birth to low birthweight infants varied from 11.3 percent in Washington to 19.1 percent in Massachusetts. Very low birthweight infants, a group that almost always requires neonatal intensive care, were also markedly common. The rates of low birthweight or very low birthweight for women receiving demonstration-sponsored substance abuse treatment were generally not significantly different from rates for other pregnant substance abusers in demonstration areas. Only two groups of demonstration clients--those receiving demonstration-sponsored substance abuse treatment in New York and those not receiving demonstration-sponsored substance abuse treatment in Washington--delivered infants with significantly higher birthweights than infants of other pregnant substance abusers in their areas. These differences may be due to differences in the underlying health status of the populations.

Finally, we examined birthweight for infants of women who received different "intensities" of substance abuse treatment during the prenatal period. We would expect that, if groups of women were comparable in other ways, those receiving more intensive services would have infants with a higher birthweight. Table III.6 shows differences in the mean birthweight of infants of demonstration clients who received minimal, moderate, and intensive substance abuse treatment. In New York and Washington, those with intensive treatment did have infants with significantly higher birthweights, while the reverse was true in South Carolina. In Massachusetts, there was no

TABLE III.6

INFANT BIRTHWEIGHT FOR DEMONSTRATION
CLIENTS BY LEVEL OF SUBSTANCE ABUSE
TREATMENT AND PRENATAL CARE
(Demonstration Area, Demonstration Period)

Level of Treatment	Demonstration Clients with Demonstration-Sponsored SA Treatment			
	Massachusetts	New York	South Carolina	Washington
Number in Treatment	375	274	51	81
Mean Infant Birthweight in Grams				
Any Prenatal Treatment	2,956	3,049	3,040	3,240
Minimal Treatment	2,877	2,929	3,215	2,699
Moderate Treatment	2,981	2,998	3,096	3,284*
Intensive Treatment	2,933	3,193*	2,615*	3,377*
Both Intensive Treatment and Adequate Prenatal Care	2,880	3,193	3,241	3,336*

- NOTES: 1. Source: birth certificates.
 2. *: Estimate is significantly different than for minimal treatment at the .05 level, two-tailed test.
 3. SA = Substance Abuse.

difference in birthweight according to intensity. The puzzling finding in South Carolina (those in intensive treatment having lower birthweights) could be due to small sample sizes or to the selection of women with more severe substance abuse problems into intensive treatment. However, we conclude that the consistent results in two states regarding higher birthweights for those in intensive services give hope that treatment may be able to improve birth outcomes when it is sustained at a certain level.

5. Medicaid Expenditures

One of the policy concerns that prompted HCFA to fund the demonstrations was the high cost of caring for pregnant substance abusers. HCFA hoped that, through improved birth outcomes, the increased cost to Medicaid of substance abuse treatment might be offset by a reduction in the cost of other types of health services needed by substance-abusing mothers and their infants.

We calculated mean Medicaid expenditures for mothers and infants for the prenatal and postpartum period for four groups: demonstration clients with demonstration-sponsored substance abuse treatment, other demonstration clients, other pregnant substance abusers in the demonstration areas, and other Medicaid pregnant women. These data are shown in Table III.7.

The findings from this analysis should be interpreted in light of both how the data were tabulated and certain caveats. In tabulating the data, it was necessary to group mother and infant Medicaid claims because the two are not always isolated from each other in Medicaid files in the immediate postpartum period. We categorized expenditures into four types: (1) prenatal substance abuse expenditures; (2) other expenditures in the prenatal and delivery period (these expenditures were not just for prenatal care, but for all Medicaid-covered services, including global fees and hospitalization costs for the mother and infant at delivery); (3) postnatal substance abuse treatment

TABLE III.7

AVERAGE MEDICAID EXPENDITURES
(In Dollars, Demonstration Area, Demonstration Period)

Expenditure Category	Demonstration Clients		Other Pregnant Substance Abusers	Other Medicaid Pregnant Women
	With Demonstration SA Treatment	Other		
MARYLAND				
Number of Women	0	50	277	2,504
Total Expenditures	--	\$17,540	\$21,890	\$9,860
Prenatal Substance Abuse Treatment	--	2,825	3,665	0
Other Prenatal and Delivery	--	10,764	12,339	8,479
Postnatal Substance Abuse Treatment	--	877*	2,131	0
Other Postnatal	--	3,112	2,708	1,381
MASSACHUSETTS				
Number of Women	375	0	N/A	N/A
Total Expenditures	\$17,580	--	--	--
Prenatal Substance Abuse Treatment	2,357	--	--	--
Other Prenatal and Delivery	10,660	--	--	--
Postnatal Substance Abuse Treatment	1,590	--	--	--
Other Postnatal	2,897	--	--	--
NEW YORK				
Number of Women	274	0	3,108	26,067
Total Expenditures	\$24,485	--	\$22,999	\$15,209
Prenatal Substance Abuse Treatment	3,502*	--	986	0
Other Prenatal and Delivery	14,440*	--	18,295	12,947
Postnatal Substance Abuse Treatment	2,717*	--	767	0
Other Postnatal	3,868*	--	3,008	2,262
SOUTH CAROLINA				
Number of Women	51	23	65	2,360
Total Expenditures	\$13,993	\$8,508	\$14,964	\$8,229
Prenatal Substance Abuse Treatment	1,470*	12	10	0
Other Prenatal and Delivery	8,894	6,190	12,163	6,852
Postnatal Substance Abuse Treatment	1,590*	997	99	0
Other Postnatal	1,981	1,309	2,691	1,377
WASHINGTON				
Number of Women	81	344	270	6,141
Total Expenditures	\$22,313*	\$9,248	\$11,731	\$6,798
Prenatal Substance Abuse Treatment	3,195*	41	41	0
Other Prenatal and Delivery	11,658	6,969	9,356	5,400
Postnatal Substance Abuse Treatment	2,943*	113	285	0
Other Postnatal	4,536*	2,141	2,049	1,398

- NOTES: 1. Source: Medicaid claims.
 2. For definitions of time periods and study areas, see Figure I.1 and Appendix C.
 3. N/A = Not Available, SA = Substance Abuse.
 4. *: Estimate for demonstration clients is significantly different from other pregnant substance abusers at the .05 level, two-tailed test.
 5. Expenditures are for mothers and infants for 9 months prior to and 6 months following delivery. Mean expenditures by category do not sum to mean total expenditures due to missing values.

expenditures; and (4) other postnatal expenditures. The prenatal period was defined as the nine months preceding the admission date for the delivery hospitalization, and the postnatal period was the six months following discharge.

The mean expenditures in each of these categories do not sum exactly to the mean total expenditures because we often had different denominators for each of the calculations. In particular, when infants could not be matched to their mothers, we set the total, prenatal/delivery, and other (non-treatment) postnatal expenditures to missing and did not include those records in the calculation of the means for those expenditure categories. The mean substance abuse treatment expenditures included such records. Twins were excluded because of matching difficulties. While we have captured all the Medicaid expenditures, expenditures for prenatal and postnatal treatment covered by the state treatment system, not by Medicaid, are not included in total expenditures. This led to an unknown downward bias in the federal and state cost of substance abuse treatment.

Finally, while we compare demonstration clients with other groups not served by the demonstration, it is not possible to conclude that expenditures for demonstration clients would have been higher or lower in the absence of the demonstration. The selection into the demonstration of certain groups of women means that their characteristics may have affected their expenditures in unmeasured ways.

Table III.7 shows that substance abuse treatment expenditures for clients in demonstration-sponsored treatment in the prenatal and postnatal periods were substantially higher than expenditures for other pregnant substance abusers in the three states where comparisons were possible. This is not surprising, given that several measures of substance abuse treatment (e.g., number of months of treatment and treatment intensity) were higher for demonstration clients. Treatment expenditures in the prenatal period for clients in demonstration-sponsored treatment ranged from \$1,470 in South

Carolina to \$3,195 in Washington. This compares to a range of only \$10 to \$41 for other pregnant substance abusers in those two states. These findings lend additional support to the conclusion that the demonstrations were providing, and Medicaid was covering, extensive substance abuse treatment services in the prenatal period. Similarly, mean treatment expenditures in the postnatal period were also substantial.

Despite these differences in treatment expenditures, the mean total expenditures for demonstration clients generally did not differ significantly from expenditures for other pregnant substance abusers. This is because other (non-treatment) expenditures were somewhat lower, especially those related to prenatal care and delivery. Washington was the exception, where mean total expenditures were \$22,313 for women in demonstration-sponsored treatment programs compared to \$11,731 for pregnant substance abusers not served by the demonstration.

While Medicaid expenditures for other Medicaid pregnant women and their infants were not the major focus of the analysis, it is of interest to know how much higher expenses were for pregnant substance abusers than for other Medicaid pregnant women in demonstration areas. As shown, expenditures for other women were considerably lower than for pregnant substance abusers. This difference is due to two factors. First, other Medicaid women did not incur expenses for substance abuse treatment. Second, and more important, other Medicaid women had lower prenatal/delivery expenditures. Since the prenatal/delivery category includes delivery expenditures for mother and infant, we can expect that the low birthweight associated with pregnant substance abusers (explained earlier) led to higher delivery expenditures for these women.

B. AREA-WIDE OUTCOMES

The rationale behind the analysis of area-wide outcomes for pregnant substance abusers is that, if the demonstrations were successful at changing the systems of care within their demonstration areas, their efforts would reach beyond the clients to whom they directly provided services. That is, efforts to reach out to all pregnant substance abusers and to educate providers and other members of the community may have affected the system of care in the entire demonstration area. This analysis uses pregnant substance abusers living in an area that “matches” the demonstration area in terms of poverty characteristics and that lies within the same state. Since comparison area pregnant substance abusers did not reside in demonstration areas, they did not have access to demonstration outreach or services. However, they did have access to routine prenatal care and substance abuse treatment of the type that demonstration clients would have had without the demonstration. The comparisons are not affected by the selection problems mentioned earlier, whereby women with certain characteristics that we cannot measure self-selected into demonstration services.

Table III.8 shows the dates of the baseline and demonstration periods; the location of the demonstration and comparison areas is shown in Appendix C. The table also shows the number of pregnant substance abusers in our analysis file for each area and period, and the percent of all Medicaid pregnant women who were substance abusers in each area and period. As in the analysis of demonstration client outcomes, pregnant substance abusers in this analysis were identified with an algorithm of diagnosis and procedure codes from birth certificates, Medicaid claims, and state substance abuse treatment records.

The analysis is limited in several, important ways:

- The analysis did not perfectly control for local changes that may have affected outcomes.

TABLE III.8
NUMBER OF WOMEN IN DEMONSTRATION
AND COMPARISON AREAS

	Maryland	New York	South Carolina	Washington
DATES				
Baseline Period	7/91 - 6/93	7 - 9/92 and 7 - 9/93	7/91-6/93	7/91-6/93
Demonstration Period	7/93 - 12/94	10/93 - 12/95	7/93 - 12/95	7/93 - 12/95
NUMBER OF MEDICAID PREGNANT SUBSTANCE ABUSERS IN ANALYSIS FILES				
Demonstration Area				
Baseline Period	493	869	119	326
Demonstration Period	315	3,198	125	463
Comparison Area				
Baseline Period	343	196	51	433
Demonstration Period	245	685	76	236
PERCENT OF ALL MEDICAID PREGNANT WOMEN WHO WERE SUBSTANCE ABUSERS				
Demonstration Area				
Baseline Period	11.9	11.5	5.6	5.3
Demonstration Period	11.1	10.9	5.0	6.8
Comparison Area				
Baseline Period	9.1	5.4	2.3	15.2
Demonstration Period	11.1	4.5	2.8	7.8

NOTES: 1. Sources: Medicaid claims, birth certificates, and state substance abuse files.
2. For definitions of study areas, see Appendix C.

- While we matched the demonstration and comparison areas on poverty characteristics using census data, we had no data on substance abuse prevalence. We observed retrospectively, as shown in Table III.8, that the areas were not well-matched on substance abuse prevalence. For example, the prevalence in the New York and South Carolina comparison areas was about half the prevalence in the demonstration areas.⁶
- Power to detect differences was low due to small numbers of pregnant substance abusers in some states and low rates of enrollment in the demonstrations in other states.
- Since we restricted the analysis to pregnant substance abusers as identified by our algorithm, we eliminated some women served by the demonstrations. Also, pregnant substance abusers not identified in the three major data sources were excluded.
- A few demonstration clients resided outside the demonstration areas and were excluded.
- Massachusetts could not be included because its demonstration was statewide.

Each table shows the particular outcome measured in each demonstration and comparison area and in each time period (baseline and demonstration). The tables also show the difference between the measure in the baseline and demonstration period for the demonstration and comparison area. Finally, the tables show the “difference of differences” between the two areas. An asterisk shows that the difference of differences is significantly different from zero. All measures in the tables are regression adjusted for differences across treatment areas in maternal age, race/ethnicity, marital status, and whether this was the first child. (Unadjusted tables are provided in Appendix G.)

1. Prenatal Care Use

Table III.9 shows area-wide prenatal care outcomes for pregnant substance abusers in demonstration and comparison areas. The same four measures were used in the analysis of client

⁶The prevalence in Washington State’s comparison area dropped precipitously from the baseline to the demonstration periods. We were told by state staff that this may have been an artifact of the data, caused by the discontinuation of routine toxicology screening in some settings.

TABLE III.9

CHANGES IN USE OF PRENATAL CARE
(Medicaid Pregnant Substance Abusers in the Demonstration and Comparison Areas)

Measures of Prenatal Care	Demonstration Area			Comparison Area			Difference of Differences
	Baseline Period	Demo. Period	Change	Baseline Period	Demo. Period	Change	
Maryland							
Percent with No Prenatal Care	12.3	9.8	(2.5)	9.7	13.3	3.6	(6.1)
Percent with Early Prenatal Care	51.4	47.6	(3.8)	52.4	46.3	(6.1)	2.3
Percent with Late Prenatal Care	10.2	12.6	2.4	5.5	9.0	3.5	(1.1)
Percent with Adequate Prenatal Care	32.6	45.2	12.6	44.6	51.5	6.9	5.7
New York							
Percent with No Prenatal Care	19.9	14.7	(5.2)	19.2	9.9	(9.3)	4.0
Percent with Early Prenatal Care	31.7	35.7	4.0	25.2	35.0	9.8	(5.8)
Percent with Late Prenatal Care	15.0	14.8	(0.2)	21.2	16.6	(4.6)	4.3
Percent with Adequate Prenatal Care	26.7	30.7	3.9	21.5	29.0	7.5	(3.6)
South Carolina							
Percent with No Prenatal Care	8.9	5.1	(3.8)	6.0	8.5	2.4	(6.2)
Percent with Early Prenatal Care	51.3	54.8	3.6	59.8	50.2	(9.7)	13.3
Percent with Late Prenatal Care	2.6	6.8	4.2	4.1	6.0	1.9	2.3
Percent with Adequate Prenatal Care	25.6	50.2	24.5	64.6	50.4	(14.1)	38.7 *
Washington							
Percent with No Prenatal Care	4.5	5.5	1.0	1.6	0.5	(1.1)	2.1
Percent with Early Prenatal Care	70.0	69.1	(0.8)	65.7	66.2	0.5	(1.3)
Percent with Late Prenatal Care	6.4	8.0	1.6	2.3	6.2	3.9	(2.4)
Percent with Adequate Prenatal Care	44.3	47.3	3.0	70.0	73.2	3.2	(0.2)

- Notes: 1. Source: Medicaid claims, birth certificates, and state substance abuse treatment files.
 2. For definitions of time periods and study areas, see Figure 1.1 and Appendix C.
 3. *Significantly different at the .05 level, two-tailed test.
 4. All measures in the table are regression adjusted for differences across areas and time in maternal age, race/ethnicity, marital status, and whether this was the first child. (Unadjusted tables are provided in Appendix G).

outcomes: percent with no prenatal care, percent with early care, percent with late prenatal care, and percent with adequate (or adequate plus) prenatal care.

In all four of the states, the use of prenatal care, as measured by the summary adequacy of care index, improved over the period for pregnant substance abusers in both demonstration and comparison areas, although results are not always completely consistent. In South Carolina, however, the reverse was true in the comparison area. In that one state, the rate of prenatal care for pregnant substance abusers in the demonstration area increased significantly relative to the rate of care in the comparison area. Consequently, we conclude that, while demonstrations attempted to change whole systems of care to ensure that pregnant substance abusers were linked to prenatal care systems, it does not appear that their efforts were more effective than efforts in other similar areas of the state, except in South Carolina.

2. Substance Abuse Treatment

Except for Maryland, all demonstrations added new substance abuse treatment options or enhanced the existing treatment programs. In addition, outreach was designed to identify pregnant substance abusers and link them to treatment services. It is reasonable to expect, therefore, that an increased percentage of substance abusers would receive treatment in the demonstration areas. Table III.10 shows changes in the receipt of substance abuse treatment by pregnant substance abusers in demonstration and comparison areas; the four measures of treatment include the percent of women with any treatment, the percent of women with prenatal treatment, the percent of those in treatment who had intensive treatment, and the percent of those in treatment with both intensive treatment and adequate prenatal care.

TABLE III.10

CHANGES IN USE OF SUBSTANCE ABUSE TREATMENT
(Medicaid Pregnant Substance Abusers in the Demonstration and Comparison Areas)

Measures of Substance Abuse Treatment	Demonstration Area			Comparison Area			Difference of Differences
	Baseline Period	Demo. Period	Change	Baseline Period	Demo. Period	Change	
New York							
Percent with Any Treatment	51.0	53.2	2.2	52.9	55.2	2.3	(0.1)
Percent with Prenatal Treatment	37.4	36.8	(0.6)	39.3	38.8	(0.6)	(0.0)
Percent with Treatment Who Had Intensive Treatment	6.8	9.5	2.7	2.8	7.0	4.2	(1.5)
Percent with Treatment Who Had Intensive Treatment and Adequate Prenatal Care	3.3	2.3	(1.0)	0.0	2.7	2.7	(3.7)
South Carolina							
Percent with Any Treatment	45.5	78.7	33.2	56.4	75.1	18.8	14.4
Percent with Prenatal Treatment	24.6	51.7	27.1	43.3	50.9	7.6	19.5
Percent with Treatment Who Had Intensive Treatment	7.1	19.4	12.3	0.0	0.0	0.0	12.3
Percent with Treatment Who Had Intensive Treatment and Adequate Prenatal Care	0.0	5.0	5.0	0.0	0.0	0.0	5.0
Washington							
Percent with Any Treatment	56.7	44.2	(12.5)	43.8	31.9	(11.9)	(0.6)
Percent with Prenatal Treatment	34.9	32.6	(2.2)	36.9	26.7	(10.2)	8.0
Percent with Treatment Who Had Intensive Treatment	25.1	23.8	(1.3)	10.3	8.5	(1.8)	0.6
Percent with Treatment Who Had Intensive Treatment and Adequate Prenatal Care	5.3	5.8	0.5	7.2	7.0	(0.2)	0.8

- Notes: 1. Source: Medicaid claims, birth certificates, and state substance abuse treatment files.
 2. For definitions of time periods and study areas, see Figure 1.1 and Appendix C.
 3. *Significantly different at the .05 level, two-tailed test.
 4. All measures in the table are regression adjusted for differences across areas and time in maternal age, race/ethnicity, marital status, and whether this was the first child. (Unadjusted tables are provided in Appendix G).

The rate of treatment went up in two of the demonstration areas (New York and South Carolina), but it also increased to a similar degree in the comparison areas of those states. In Washington, however, despite the demonstration's concerted effort to expand treatment options for pregnant women, the rate of substance abuse treatment actually declined in both the demonstration and comparison areas. We were concerned that this could be an artifact of the data (e.g., a lag in state substance abuse treatment reporting), but state staff were unaware of such a problem. Consequently, this drop is unexplained. The picture for the other measures of receipt of substance abuse treatment was similar, with no significant differences in trends between demonstration and comparison areas.

3. Birthweight

As in the outcomes analysis for demonstration clients, infant birthweight was the single measure of health status routinely available in the area-wide outcomes analysis. Obtained from birth certificates, this information on birthweight was available for demonstration and comparison areas and for the baseline and demonstration period. As shown in Table III.11, there were no significant differences in birthweight trends between demonstration and comparison areas. In addition, the poor birth outcomes for pregnant substance abusers in the baseline period of both demonstration and comparison areas continued in the demonstration period. This finding is not surprising, given the low penetration of the demonstration programs, the fact that many of those served did not receive intensive treatment or adequate prenatal care, and the generally low birthweight of demonstration client infants as shown earlier in Table III.5. It is likely that the many other factors associated with low birthweight--such as poor nutrition and smoking--continued to influence the birthweight patterns of pregnant substance abusers.

TABLE III.11

CHANGES IN INFANT BIRTHWEIGHT
(Medicaid Pregnant Substance Abusers in the Demonstration and Comparison Areas)

Measures of Birthweight	Demonstration Area			Comparison Area			Difference of Differences
	Baseline Period	Demo. Period	Change	Baseline Period	Demo. Period	Change	
Maryland							
Percent with Low Birthweight (<2500 grams)	23.3	28.4	5.1	29.0	34.3	5.2	(0.2)
Percent with Very Low Birthweight (<1500 grams)	2.3	5.2	2.9	2.7	6.3	3.6	(0.7)
Average Birthweight	2,897	2,787	(110)	2,832	2,714	(118)	8
New York							
Percent with Low Birthweight (<2500 grams)	24.3	24.5	0.2	29.5	23.4	(6.0)	6.3
Percent with Very Low Birthweight (<1500 grams)	4.7	4.1	(0.6)	3.5	3.9	0.4	(1.0)
Average Birthweight	2,930	2,945	15	2,943	2,980	37	(21)
South Carolina							
Percent with Low Birthweight (<2500 grams)	19.6	19.8	0.3	28.0	22.6	(5.4)	5.6
Percent with Very Low Birthweight (<1500 grams)	4.3	5.1	0.8	0.0	4.5	4.5	(3.7)
Average Birthweight	3,002	2,972	(30)	3,021	3,037	16	(46)
Washington							
Percent with Low Birthweight (<2500 grams)	10.4	11.0	0.6	8.4	8.9	0.6	0.1
Percent with Very Low Birthweight (<1500 grams)	2.5	2.3	(0.1)	0.7	0.5	(0.2)	0.1
Average Birthweight	3,203	3,223	20	3,321	3,283	(38)	58

- Notes: 1. Source: Medicaid claims, birth certificates, and state substance abuse treatment files.
 2. For definitions of time periods and study areas, see Figure I.1 and Appendix C.
 3. *Significantly different at the .05 level, two-tailed test.
 4. All measures in the table are regression adjusted for differences across areas and time in maternal age, race/ethnicity, marital status, and whether this was the first child. (Unadjusted tables are provided in Appendix G).

4. Medicaid Expenditures

While total expenditures did climb more rapidly for pregnant substance abusers in demonstration areas than in comparison areas, the differences were not statistically significant (Table III.12). Given that trends in the receipt of prenatal care and substance abuse treatment were not significantly different between demonstration and comparison areas, it is not surprising that trends in Medicaid expenditures in the two areas also did not differ significantly. In Washington, prenatal and postnatal treatment expenditures increased more rapidly in the demonstration area, although mean treatment expenditures were still rather low when compared to all Medicaid expenditures.

TABLE III.12

CHANGES IN MEAN MEDICAID EXPENDITURES
(Medicaid Pregnant Substance Abusers in the Demonstration and Comparison Areas)

Medicaid Expenditures	Demonstration Area			Comparison Area			Difference of Differences
	Baseline Period	Demo. Period	Change	Baseline Period	Demo. Period	Change	
Maryland							
Mean Total Expenditures	16,219	20,442	4,222	15,991	15,748	(243)	4,466
Mean Prenatal Substance Abuse Treatment Expenditures	2,419	3,166	746	1,227	2,097	870	(124)
Mean Other Prenatal & Delivery Expenditures	10,543	11,856	1,314	11,070	9,936	(1,134)	2,447
Mean Postnatal Substance Abuse Treatment Expenditures	1,137	1,727	591	809	831	22	568
Mean Other Postnatal Expenditures	2,183	2,839	656	2,872	2,519	(353)	1,009
New York							
Mean Total Expenditures	17,198	21,756	4,558	18,023	21,623	3,600	958
Mean Prenatal Substance Abuse Treatment Expenditures	818	891	73	718	583	(135)	208
Mean Other Prenatal & Delivery Expenditures	14,202	17,084	2,882	14,716	17,623	2,907	(25)
Mean Postnatal Substance Abuse Treatment Expenditures	408	677	269	510	913	403	(134)
Mean Other Postnatal Expenditures	1,765	3,153	1,388	1,905	2,514	609	779
South Carolina							
Mean Total Expenditures	11,697	14,265	2,568	8,753	10,758	2,005	563
Mean Prenatal Substance Abuse Treatment Expenditures	234	567	333	296	29	(267)	600
Mean Other Prenatal & Delivery Expenditures	8,665	10,322	1,657	6,534	8,813	2,279	(623)
Mean Postnatal Substance Abuse Treatment Expenditures	279	870	591	359	619	260	330
Mean Other Postnatal Expenditures	2,534	2,469	(65)	1,557	1,285	(273)	208
Washington							
Mean Total Expenditures	7,964	12,186	4,222	8,389	9,543	1,154	3,068
Mean Prenatal Substance Abuse Treatment Expenditures	(97)	451	547	194	69	(125)	672 *
Mean Other Prenatal & Delivery Expenditures	6,277	8,683	2,407	6,551	7,540	989	1,418
Mean Postnatal Substance Abuse Treatment Expenditures	(20)	685	705	23	37	14	690 *
Mean Other Postnatal Expenditures	1,810	2,386	576	1,602	1,898	296	280

- Notes:
1. Source: Medicaid claims.
 2. For definitions of time periods and study areas, see Figure I.1 and Appendix C.
 3. *Significantly different at the .05 level, two-tailed test.
 4. Negative numbers in the baseline period are due to regression adjustments; actual mean expenditures for all states, periods, and categories are shown in Appendix G.
 5. All measures in the table are regression adjusted for differences across areas and time in maternal age, race/ethnicity, marital status, and whether this was the first child.

IV. CONCLUSIONS

This chapter synthesizes the findings from the qualitative and quantitative analyses of the Demonstrations to Improve Access to Care for Pregnant Substance Abusers. The purpose of this synthesis is to provide an overall picture of what the demonstrations did and how this may have affected the people they served and their communities. As emphasized throughout this report, our conclusions about the effect of the demonstrations are tentative because the demonstrations were not designed to provide definitive impact estimates. However, it is useful to step back from the cross-site results and consider what each demonstration teaches us about systems of care for pregnant substance abusers. This chapter provides such a state-by-state synthesis as well as overarching conclusions that can guide HCFA's policymaking efforts regarding Medicaid coverage of care for pregnant substance abusers.

A. STATE-BY-STATE CONCLUSIONS

1. Maryland

Maryland's Better Chance project supported outreach activities and, through support group and case management services, encouraged clients to obtain substance abuse treatment in existing facilities. The project did not augment the existing substance abuse treatment system or obtain waivers for residential treatment.

The project used multiple approaches to outreach, including a media campaign, an enhanced hotline, street outreach, and provider training. Nevertheless, it was difficult to recruit clients, and so the project did not meet its enrollment target for the demonstration. And despite the fact that

more than 50 women were actually enrolled in the demonstration,¹ only 50 could be included in our analysis because of matching difficulties with Medicaid records² and because some delivered in 1996.

The project did not meet its enrollment target primarily because vigorous marketing by HMOs in Baltimore drew women away from the Hopkins clinic to other providers, steadily shrinking the pool of clients from which the demonstration could draw. Demonstration clients represented about 12 percent of pregnant substance abusers in the demonstration area in the early part of the demonstration.³ In retrospect, it was unreasonable to expect a higher rate of enrollment in Better Chance because the demonstration was designed to identify clients in only one clinic setting.

Another aspect of the demonstration that hampered its ability to affect not only area-wide outcomes but also client outcomes, was the design of the intervention, which restricted support services to support groups and case management. While all clients were offered and expected to attend support groups, about 1 in 10 clients did not receive these services, and the project reported that sustaining consistent participation was very difficult. Clients participated in support groups for less than four months, on average. While those randomly assigned to case management (30 of the 50 clients) all received it, and did so for an extended period, the model of case management may not have been as effective as other models in reaching women and sustaining their participation in the groups or changing other behaviors such as substance use. (The demonstration used professional case management in a hospital clinic setting as opposed, for example, to home visiting.) Indeed,

¹Fifty compared to an original enrollment target of 400.

²Some of the demonstration clients were not actually Medicaid enrollees, some aborted, and some lived outside the demonstration area.

³We did not examine these data for 1995, because increased managed care penetration made it difficult to identify the pregnant substance abusers who were not in the demonstration program.

abstinence rates were very low in the Maryland demonstration, which did not insist on abstinence for participation.

Given the small number of women participating in the Better Chance project, it is difficult to draw firm conclusions about the effect of its model, which was designed more to reduce substance use than to prevent it entirely, and to improve the use of prenatal care. Demonstration clients were more likely than other pregnant substance abusers in the demonstration area to have received early prenatal care (66.7 versus 43.9 percent), but the rate of adequacy of care (a measure of the number as well as the timing of visits) was not significantly different. We observed no other significant differences in outcomes for Maryland, except for the seemingly unlikely result that average postnatal substance abuse treatment expenditures were lower for demonstration clients than for other pregnant substance abusers in the demonstration area.

We conclude that the Better Chance project did not improve access to care for pregnant substance abusers and or birth outcomes because of the following aspects of the demonstration design:

- Depending on a single clinic as the source of enrollment
- The relatively low intensity of the intervention, which did not have a substance abuse treatment component
- Factors external to the demonstration involving the implementation of Medicaid managed care

2. Massachusetts

The MOTHERS project in Massachusetts received a waiver from the Medicaid exclusion from covering care in Institutions for Mental Disease. The cornerstone of the demonstration was therefore to provide Medicaid coverage of services for pregnant substance abusers in the state's existing

residential treatment facilities. While we have called this effort a demonstration, and while the state did receive a demonstration waiver, no new services were offered under the demonstration except for very limited outreach in the first year. The state's substance abuse treatment system for pregnant women is extensive and includes specialized residential and outpatient facilities as well as free-standing detoxification facilities that are oriented toward the needs of pregnant women.

The preferred continuum of care for pregnant substance abusers in Massachusetts is to enter detoxification and then proceed to another level of care, such as residential treatment. Demonstration funds were used to compare maternal and birth outcomes and associated treatment costs of women who received residential substance abuse treatment to women who received ambulatory treatment or detoxification services only. For purposes of the national evaluation, we considered the women in this research project as demonstration "clients" and the treatment they received, including the initial detoxification episode, as "demonstration-sponsored treatment."

This demonstration framework prevented us from designating a reasonable comparison group of the type we developed in other states because any woman in the state could enter one of the detoxification facilities in which demonstration clients were enrolled. Also, pregnant substance abusers who did not enroll could receive the same substance abuse treatment services offered in the demonstration. Because of the resulting absence of a viable comparison group, we did not make within-state comparisons in Massachusetts.

It is reasonable to compare Massachusetts clients to those in New York, since clients were identified in both states as they entered treatment programs. We see some similarities and a few differences. Women in both demonstrations had more months of treatment than women in the other states (about eight months in the prenatal/postpartum period). They also had more treatment episodes, reflecting more episodic care. Massachusetts did, however, have a higher rate than New

York of intensive substance abuse treatment and adequate prenatal care (although not as high as Washington's). Consequently, we can conclude that the state was providing a relatively intensive level of substance abuse treatment services to the pregnant women coming through its detoxification facilities. Adequate prenatal care was also provided to about half of these women. The level of intensity of substance abuse treatment seemed to translate into higher rates of postpartum abstinence from drug use than was true in the two other states (Maryland and South Carolina) from which we have data.

On the other hand, the birthweight outcomes for pregnant substance abusers studied in Massachusetts were poor, compared with all states but Maryland. Nor did we observe a gradient in birthweight according to intensity of treatment services, as observed in the other states.

Because the Massachusetts MOTHER's project did not develop new, or enhance existing, systems of care, little can be learned specifically from the demonstration about improving access to care for pregnant substance abusers. However, there does seem to be a connection between extensive treatment facilities for pregnant women, providing a relatively intense level of services for pregnant women statewide admitted to detoxification, and achieving abstinence among many of them. Despite these positive results, it remained difficult to affect birth outcomes as measured by infant birthweight.

3. New York

New York's project supported outreach activities and provided expanded substance abuse treatment options. All the demonstration clients in New York received services in such enhanced treatment settings.

New York initially had difficulty soliciting the participation of treatment providers and implementing its outreach programs. Also, the progress in each of the six demonstration sites around the state was quite variable. State staff found that outreach agencies that were aggressive about establishing a reputation as caring professionals in the community were the most successful at outreach, and that such a process took more time than initially anticipated. Enrollment rates climbed in the last half of the demonstration. Despite some early delays implementing outreach, the agencies become more successful as they gained knowledge, experience, and a reputation in their communities. Clients, defined as those receiving treatment in demonstration-sponsored facilities, accounted for about 9 percent of the pregnant substance abusers in the demonstration areas. While the demonstration affected other pregnant substance abusers in the demonstration area, by contacting and encouraging them to seek services through outreach programs, data on these other women were not collected.

New York provided a relatively intensive level of services to its clients relative to the services available to other pregnant substance abusers in the demonstration area. All clients, by definition, received some substance abuse treatment, and about one-third received residential care. In contrast to the women in Massachusetts, those in intensive treatment in New York had higher birthweight infants. This is especially promising, as is the fact that New York clients had significantly lower rates of low birthweight than other pregnant substance abusers in their demonstration area, even though all clients were in treatment and therefore, one might suspect, had more severe substance abuse problems on average. While substance abuse treatment was more expensive for clients in New York than other pregnant substance abusers in the area, their overall Medicaid expenditures were not higher because their prenatal/delivery expenditures were lower, a reflection of their higher average birthweights.

Despite these relatively favorable outcomes for demonstration clients in New York, there was no significant difference between demonstration and comparison areas in terms of any of the area-wide outcome measures. The percent of pregnant substance abusers enrolled in the demonstration was low, only about 20 percent, and only women who came for treatment received demonstration-sponsored services. While the outreach efforts attempted to bring new, previously underserved groups into treatment, it does not appear that this happened, since the rate of receiving any substance abuse treatment changed only slightly in the demonstration area and changed at the same rate in the demonstration and comparison areas. In addition, there was essentially no change in infant birthweight from the baseline to the demonstration periods in either the demonstration or comparison areas.

We conclude that the attempts in New York to change basic systems of care, while appreciated by clients and providers as reported in focus groups, probably did not change rates of prenatal care, substance abuse treatment, birth outcomes, or expenditures in the demonstration areas. However, for the select group of clients who enrolled in treatment, the demonstration made available the services that could eventually lead to such improvements. Evaluations with more rigorous designs are needed to draw definitive conclusions.

4. South Carolina

The Transitions project in South Carolina was one of only two demonstrations that adopted a broad-based intervention including outreach, screening, substance abuse treatment, and other support services. (The other project was in Washington.) Transitions was also one of only two projects in a rural and "service poor" area, providing treatment through just one facility (the Dawn Center).

Initially, the Dawn Center provided residential services and later, outpatient services, including intensive services, which many demonstration clients received. Consequently, while about the same percentage of clients received intensive treatment as in the other states (except in Washington where the rate was higher), more clients in South Carolina received this care in intensive outpatient setting than in other states, while clients in the other states (Massachusetts, New York, and Washington) more often received intensive treatment in residential settings (Table II.8).

From the beginning, the project reported difficulties in recruiting clients.⁴ Much of this difficulty was attributed to the reluctance of pregnant substance abusers to identify themselves to the project and risk incarceration or having their children removed from the home, the latter being common in the state. The project worked valiantly to educate the staff of Child Protective Services, who were included in periodic case deliberations. The project reported some slow improvement in this situation later in the demonstration.

Another improvement in outreach and identification was to place trained substance abuse workers in the highest-volume prenatal care clinic in the county. By the end of the period observed, the project identified and served about half the substance abusers in our analysis files. While it is possible that pregnant substance abusers were also under-identified in these analysis files because of the failure to "self-identify" (discussed above), the prevalence for substance use among pregnant women that we report (about 5 percent) seems reasonable, given the fact that the project's service area was rural.

In addition to the outreach and treatment services offered by Transitions, case management (billed to Medicaid) was provided to virtually all clients. While the project model planned for other

⁴As we pointed out, the project had overestimated its target enrollment substantially which was a factor in its perceived low enrollment.

types of services, such as support groups and child care, there was no individual-level data on such services, and conversations with staff suggest that they were rarely provided. Similarly, an area-wide screening effort was planned, but it is not clear that it was fully implemented. In addition, individual-level data were not collected.

In terms of outcomes, there were few significant differences between demonstration clients and other pregnant substance abusers in the demonstration area. This may be due to the very small sample sizes in South Carolina, with only 51 women receiving demonstration-sponsored treatment, 23 other clients, and 65 other pregnant substance abusers in the demonstration area. For example, while those in demonstration treatment had lower rates of low birthweight and higher mean birthweights than other pregnant substance abusers in the demonstration area, the differences were not statistically significant.

We conclude that South Carolina's demonstration was able, through intensive efforts, to identify and serve a relatively large proportion of pregnant substance abusers in the demonstration area. The rate of substance abuse treatment also increased substantially, although the same is true for the comparison area. And although there were few significant differences that could possibly be attributed to the demonstration efforts, the size of the South Carolina demonstration and its design limits our ability to draw conclusions about its impact.

5. Washington

Washington's First Steps Plus project supported a variety of outreach activities, screening, and support services. It also expanded and enhanced treatment in two residential treatment facilities. Like South Carolina, Washington operated its demonstration in a rural area and adopted a wide-range of interventions as well as a community education and networking approach to changing

systems of care. For example, a full-time staff member worked in the community throughout the project to educate providers and to foster linkages between diverse programs.

On the whole, the Washington demonstration was the most successful in implementing its demonstration model as designed. The most promising recruitment strategy in Washington, and one that provides a model for other communities, was to develop a short-screening form and to educate providers in how to use it and in what to do when they identified those at risk of substance abuse. Providers would call mobile assessment workers, who would then contact the pregnant women. In this manner, the project identified and contacted about half the pregnant substance abusers in the demonstration area and a large number of other women identified as “at risk” of substance abuse. The contact with at-risk women was an educational, prevention-oriented service that might be reflected in longer-term reduced substance use and improved health, although those outcomes were not addressed in this evaluation.

We examined the outcomes for clients in the Washington demonstration who received demonstration-sponsored treatment services in one of the two treatment facilities: Reil House, a long-term residential treatment facility, and Sundown M Ranch, a short-term treatment facility. The 81 clients who received demonstration treatment and for whom we had linked data stayed longer in treatment than did other pregnant substance abusers in the demonstration area who had treatment. These 81 clients were also more likely to have had some prenatal care, although they were not more likely to have had adequate prenatal care. This may be because the treatment facilities could guarantee that women would receive prenatal care while in the facilities but not that prenatal care would continue after discharge.

Average infant birthweight was higher in Washington than in the other four states across all groups (demonstration clients, other pregnant substance abusers, and other Medicaid pregnant

women), reflecting primarily the racial/ethnic composition of the Medicaid population there. Still, differences between pregnant substance abusers and other Medicaid pregnant women in Washington resemble the differences observed in other states, with the rate of low birthweight being twice as high for pregnant substance abusers as for other Medicaid women. Consequently, the Washington demonstration had an opportunity to improve infant birthweight through changed behavior and, possibly, to reduce prenatal/delivery expenditures, an outcome that was tentatively suggested by the New York results for demonstration clients.

There were no significant differences between the birthweight of the infants of clients in the Washington demonstration treatment programs and infants of other pregnant substance abusers in the demonstration area. While infants of the other women identified by the demonstration (those not in demonstration treatment programs) had a higher birthweight than infants of other pregnant substance abusers, we have concerns that the groups are not sufficiently comparable to support conclusions about the differences. (Not all of these other clients were substance abusers according to our algorithm; some were at-risk of substance abuse.)

Within the group of clients who had demonstration-sponsored treatment in Washington, those who stayed longer in treatment delivered infants with significantly higher birthweight. For those in the one-month (short-term) treatment program at Sundown M Ranch, this means they received some aftercare either at Reil House or in an outpatient program. For those at Reil House, it means that they were admitted and stayed in their treatment for at least three months.

In Washington, Medicaid expenditures for prenatal and postnatal care were higher for demonstration clients who received demonstration-sponsored treatment than for other pregnant substance abusers. The absence of a difference in infant birthweight between these clients and other pregnant substance abusers means that, in contrast to the situation in New York, there was no

reduction in prenatal/delivery expenditures to offset the increased treatment expenditures. Consequently, the Medicaid expenditures were significantly higher for women in demonstration-sponsored treatment. Area-wide outcomes also differed significantly in terms of trends in treatment expenditures (with expenditures going up more rapidly in the demonstration area) but not in terms of trends in other outcomes.

Although Washington mounted a sustained effort to implement its demonstration model as designed, and implemented it well, our data do not indicate that the model significantly improved rates of prenatal care, substance abuse treatment, infant birthweight, or reduced overall program expenditures, all of which were goals of the demonstration. The most promising results were that the demonstration reached a relatively high proportion of pregnant substance abusers through innovative screening methods and that, for those who did remain in treatment, there is evidence of possible improvements in their birth outcomes.

B. OVERARCHING CONCLUSIONS

1. Administrative and Service Integration

All five demonstrations demonstrated the importance of the coordination between the medical, social service, and treatment providers and agencies at the state and local level. Successful efforts to link these providers and agencies, and help them to understand each other's procedures and problems, were important accomplishments of the demonstrations. Particularly important was the fact that the state Medicaid and substance abuse agencies, which in most states were not closely linked historically, interacted closely in planning and implementing the demonstration, although the relative strength of involvement varied considerably from project to project.

We found that a lack of continuity in leadership, because of turnover or the demands of other initiatives (such as managed care implementation at the state level), led to slower development of a demonstration program. Washington State was the most successful in implementing its original model on time in a sustained and consistent manner, and this success can be attributed in large part to consistent state and local leadership and strong support at both levels for the demonstration.

2. Outreach

All demonstrations anticipated the need for and implemented some outreach, but they all struggled to find ways to identify and engage the target population. Projects that had the most success were those that placed professionally trained outreach workers in clinic and social service sites. These individuals were trained in identifying substance abuse and could provide referrals for case management and treatment. However, this strategy is expensive because a full-time outreach worker cannot identify very many pregnant substance abusers at a time. Additionally, this strategy identified only women who voluntarily sought services, such as prenatal care, in certain sites. We recommend expanding this model by rotating professionally trained workers or other workers with substantial training through nontraditional settings such as jails and homeless shelters.

3. Screening

Projects that used a brief uniform screening form and trained providers in using the form (primarily Washington and, to a lesser extent, South Carolina) reached a higher proportion of pregnant substance abusers. This approach has the advantage of possibly identifying substance abuse earlier in pregnancy, leading to earlier treatment.

4. Linking Women to Treatment and Support Services

The process of engaging women and readying them for treatment was a significant gap in the design of most of the demonstrations. Generally, the process was implemented through existing case management systems that would link pregnant substance abusers to treatment and other services. This approach did not always ensure that these women received appropriate services, since the systems were designed for the general population of Medicaid pregnant women, except in Maryland where special case management services were provided to a random sample of the demonstration women. (Since that program was very small, and only half the women in the program had this special case management, results are inconclusive.)

However, Washington developed an innovative mobile assessment approach that more closely addressed the special needs of pregnant substance abusers. In this model, which had both outreach and case management components, workers were employed and trained by the state substance abuse agency to quickly contact substance abusers and those at risk of substance abuse once they were identified. This type of immediate linkage could serve as a model for other states.

5. Treatment

The demonstrations made sustained efforts to develop more appropriate treatment models for pregnant women. However, progress was slow, and there was certainly not as much treatment for Medicaid pregnant women provided through the demonstration as originally planned. For example, developing the new programs at Sundown M Ranch in Washington and the Dawn Center in South Carolina--both previously male-oriented, short-term alcohol treatment programs--took time, and slots were never completely filled.

The demonstrations were developed, in part, to provide information to HCFA on the cost-effectiveness of residential (that is, IMD-waivered treatment) versus outpatient treatment. However, the design of the demonstrations did not allow us to make firm conclusions in any state about this issue. Focus groups and interviews did not show that providers, other professionals, or pregnant women in treatment had a consistent preference for a particular type of treatment. The needs of pregnant women are varied and a range of models is used to serve those needs. Residential treatment was reported to be most appropriate for women who have relapsed frequently, who have acute housing needs, who live with or near other substance abusers, or who do not have a strong support system. However, if they have other children with them, residential treatment may be infeasible, and intensive outpatient treatment combined with special child care programs may be more appropriate.

Many experts recommend a continuum of care that begins with detoxification. (Massachusetts has demonstrated that this can be provided in free-standing, non-hospital settings.) Detoxification should be followed by residential or intensive outpatient treatment over a sustained period (at least three to six months), followed by less intensive outpatient treatment. We discovered that this continuum was often absent. We observed very episodic care among both demonstration clients and other pregnant substance abusers, suggesting that women often dropped out or relapsed and did not therefore get the full benefit of services.

6. Outcomes

Throughout this report, we substantially qualified the outcome findings from the national evaluation, cautioning HCFA that any outcomes observed and reported here cannot be attributed directly to the demonstrations. With this caveat in mind, we tentatively conclude that the demonstrations were not able, in general, to achieve their very ambitious goals of identifying

pregnant substance abusers, improving their prenatal care, increasing their rate of substance abuse treatment, improving the birthweight of their infants, and reducing overall Medicaid expenditures for this high-risk group. We reached this conclusion primarily on the basis of findings from the area-wide analyses, which showed almost no significant differences in trends in these outcomes in demonstration areas, when compared to trends in other similar areas where the demonstrations were not operating.

In two of the demonstrations where such comparisons were made (Maryland and New York), women self-selected into the demonstration, and the number of pregnant substance abusers enrolled in the demonstrations was low relative to all pregnant substance abusers in the area. Consequently, while the client-level analysis of outcomes revealed some significant differences between demonstration clients and others, this seems to have been due primarily to the self-selection of a special population into the demonstration.

South Carolina and Washington, the other two demonstrations in which area-wide comparisons were made, implemented more broad-based outreach efforts and identified demonstration clients in a variety of ways. Consequently, enrollment rates were higher in those areas, and their outreach efforts suggest ways to accomplish higher enrollment. However, with minor exceptions in each state, we did not observe a possible effect of these demonstrations on area-wide outcomes for pregnant substance abusers.

There were a few bright spots in our outcome findings. Washington defined and implemented a continuum of care with two levels of residential treatment for pregnant substance abusers. It appears that women who received "intensive treatment," as defined by higher levels of and greater retention in treatment, did have higher birthweight infants, as compared to those with minimal treatment. Since the groups compared both had a need for treatment, the results are suggestive of,

although not definitive about, the possibility that birth outcomes can be improved for pregnant substance abusers. More studies of this issue are needed, and the HCFA demonstrations provide some guidance for policymakers about how to design treatment programs. Programs that are intensive in the level of treatment (either very frequent outpatient services or residential services followed by after-care) with longer retention in treatment may lead to improved outcomes.

7. Model Programs

An understanding of the varied experiences of pregnant substance abusers is essential for future policy development. Better information is needed about this high-risk population in order to help policy makers judge the care needs of this group and develop effective interventions. While the HCFA demonstrations and this evaluation have provided much new information for policy development, many questions remain on how to serve this high-risk and costly group. If HCFA wants to encourage the future development of model programs for pregnant substance abusers and evaluate their effectiveness through the granting of additional demonstration waivers or other studies, we recommend a program with the following components:

- ***Administrative links at the state and local level.*** Administrative linkages should involve, at a minimum, the state Medicaid and substance abuse treatment agencies as well as, if possible, medical care providers, social services, the child protection system, and the criminal justice system. These linkages can be accomplished through state and local level task forces, or through other kinds of regular communication such as reports or newsletters. A particularly complex part of this effort to establish administrative links is to ensure confidentiality; otherwise, creating such links can create a deterrent to receiving services.
- ***Outreach and screening in traditional and nontraditional medical and social services sites.*** Outreach workers should be trained in identifying substance abuse and providing services, and, as in the Washington model, in engaging women at important service entry points. This should be combined with training and ongoing monitoring of providers in screening and referral.

- *Development of a continuum of services including free-standing detoxification, residential treatment, intensive outpatient treatment, after care, child care, and other support services such as case management.* Such a range of services is likely to improve the retention rates of pregnant substance abusers which may, in turn, affect their birth outcomes and costs.

If HCFA wants to compare the cost-effectiveness of residential and intensive outpatient treatment, it should require random assignment from detoxification into these alternative treatment models in future demonstrations providing IMD waivers. HCFA could facilitate this by providing waivers for residential treatment when a pregnant woman is randomly assigned to residential treatment.

C. A PERSONAL VIEW

We end with the personal view of an outreach specialist in one of the demonstration programs, who, in a progress report, conveyed her positive feelings about experiences with the demonstration as well as concerns for the future:

"I was not aware of how difficult this population would be to reach and the numerous barriers that would have to be removed in assisting them in accessing services. The needs of these women are great and 'the system' is lagging in meeting them. The provision of services is extremely fragmented and inadequate. More treatment facilities are needed: inpatient, outpatient, and half-way houses. More doctors that will accept Medicaid are needed so that women who have not had any prenatal care and are seeking placement can get an initial exam more readily rather than be told they have to wait six to eight weeks for an appointment. More training/education for doctors and their medical staff is needed to teach them how to assess and identify pregnant substance abusing women as well as what to do with them once they are identified."

This assessment from a front-line worker mirrors many of the findings from the five demonstrations, which show that pregnant substance abusers are hard to identify and that providing integrated services to them is extremely challenging. We hope that some of the findings from this cross-site evaluation of their programs will help these states and others improve their outreach and systems of care.

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APPENDIX A

TIME LINES FOR THE DEMONSTRATIONS

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Maryland: Better Chance Project

[illegible]

Massachusetts: MOTHERS Project

[illegible]



New York

Activity	FY 1992				FY 1993				FY 1994				FY 1995				FY 1996			
	Oct-Dec	Jan-Mar	Apr-June	July-Sept	Oct-Dec	Jan-Mar	Apr-June	July-Sept	Oct-Dec	Jan-Mar	Apr-June	July-Sept	Oct-Dec	Jan-Mar	Apr-June	July-Sept	Oct-Dec	Jan-Mar	Apr-June	July-Sept
ADMINISTRATIVE Project Director Barbara McManaman Peter Gallagher Solicitation of treatment providers Demonstration redesign Elimination of zip codes Increase in residential reimbursement rate Resolicitation of residential treatment providers																				
BRONX																				
OUTREACH Street outreach/case finding Networking/presentations Provider skill enhancement training SUBSTANCE ABUSE TREATMENT Drug free residential treatment Drug free ambulatory treatment Services provided by medically supervised ambulatory facilities																				
BROOKLYN																				
OUTREACH Street outreach/case finding Networking/presentations Provider skills enhancement training Case management Outreach van SUBSTANCE ABUSE TREATMENT Drug free residential treatment Drug free ambulatory treatment Services provided by medically supervised ambulatory facilities																				

Activity	FY 1992				FY 1993				FY 1994				FY 1995				FY 1996			
	Oct-Dec	Jan-Mar	Apr-June	July-Sept	Oct-Dec	Jan-Mar	Apr-June	July-Sept	Oct-Dec	Jan-Mar	Apr-June	July-Sept	Oct-Dec	Jan-Mar	Apr-June	July-Sept	Oct-Dec	Jan-Mar	Apr-June	July-Sept
SYRACUSE																				
OUTREACH																				
Networking/presentations																				
Provider/community training sessions																				
Case management																				
SUBSTANCE ABUSE TREATMENT																				
Drug free residential treatment																				
Enhanced services provided by medically supervised ambulatory facilities																				



South Carolina: TRANSITIONS Project

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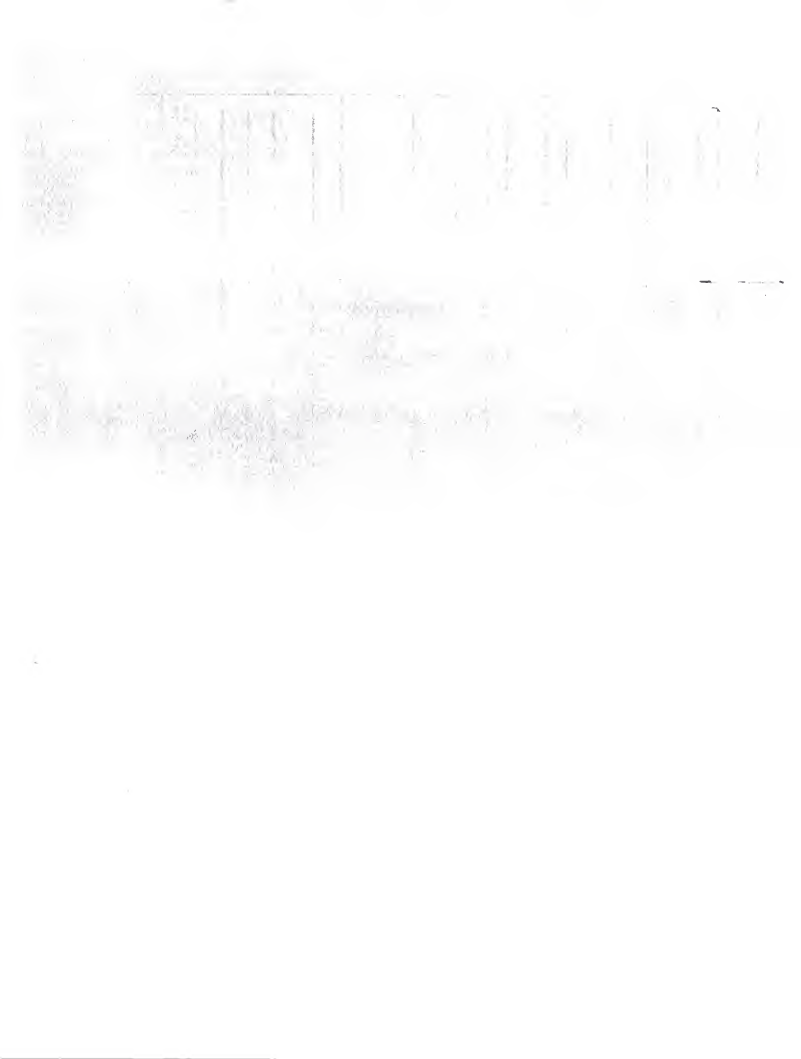
Washington: First Steps PLUS Project

Activity	FY 1992				FY 1993				FY 1994				FY 1995				FY 1996			
	Oct-Dec	Jan-Mar	Apr-June	Jul-Sept	Oct-Dec	Jan-Mar	Apr-June	Jul-Sept	Oct-Dec	Jan-Mar	Apr-June	Jul-Sept	Oct-Dec	Jan-Mar	Apr-June	Jul-Sept	Oct-Dec	Jan-Mar	Apr-June	Jul-Sept
ADMINISTRATIVE																				
Project Director - Kathy Apodaca																				
Local advisory committee (Yakima County First Steps Coordinating Committee)																				
First Steps PLUS subcommittee																				
OUTREACH																				
Mobile outreach and assessment																				
Weekly site visits to Yakima Indian Health Services																				
Weekly site visits to Yakima Neighborhood Health Services																				
Media campaign (radio and television public service announcements, pamphlets, flyers, and incentive products)																				
Media campaign (radio and television public service announcements, pamphlets, flyers, and incentive products)																				
Provider/community training																				
Screening form																				
PRENATAL CARE																				
Enhanced fee for case management																				
Parenting education																				
SUBSTANCE ABUSE TREATMENT																				
Enhanced residential treatment at Riel House																				
Residential medical stabilization and intensive inpatient treatment at Sundown Ranch																				
CHILD SERVICES																				
Therapeutic child care																				
Crisis nursery care																				
MANAGED CARE																				
Implementation of managed care																				



APPENDIX B

LIST OF PROJECT REPORTS



LIST OF PROJECT REPORTS AND ARTICLES

A. PROJECT REPORTS:

- Thornton, Craig, Embry Howell, and Esther Alonso. "Evaluation Design Report." Washington, DC: Mathematica Policy Research, Inc., March 1993.
- Sprachman, Susan, Embry Howell, and Craig Thornton. "Justification for OMB Clearance of Pregnant Substance Abuse Questionnaire." Princeton, NJ: Mathematica Policy Research, Inc., April 1993.
- Hill, Ian, Beth Zimmerman, Mary Harrington, and Linda Lewis. "Evaluation of the Demonstration for Improving Access to Care for Pregnant Substance Abusers: Year One Process Analysis." Volumes 1 and 2. Washington, DC: Health Systems Research, Inc., Mathematica Policy Research, Inc., and National Association for Perinatal Addiction Research and Education, May 1994.
- Howell, Embry, Mary Harrington, Lorenzo Moreno, Craig Thornton, Ian Hill, and Ira Chasnoff. "Second Annual Report: Evaluation of the Demonstration to Improve Access to Care for Pregnant Substance Abusers." Washington, DC: Mathematica Policy Research, Inc., December 1994.
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- Howell, Embry, et al. "Fourth Annual Report: Evaluation of the Demonstration to Improve Access to Care for Pregnant Substance Abusers." Washington, DC: Mathematica Policy Research, Inc., September 24, 1997.
- Howell, Embry, et al. "Final Report: Evaluation of the Demonstrations To Improve Access to Care For Pregnant Substance Abusers." Washington, DC: Mathematica Policy Research, Inc., December 31, 1997

B. ARTICLES:

Hill, Ian, Renee Schwalberg, and Beth Zimmerman. "Improving Systems of Care for Pregnant Substance Abusers: Lessons Learned from the HCFA Demonstration Projects." Submitted to *Maternal and Child Health Journal*.

Howell, Embry M., and Ira Chasnoff. "Perinatal Substance Abuse Treatment: Findings from Focus Groups with Clients and Providers." Submitted to *Journal of Substance Abuse Treatment*.

Howell, Embry M., et al. "Identifying Pregnant Substance Abusers and Studying Their Treatment Using Birth Certificates, Medicaid Claims, and State Substance Abuse Treatment Data." Submitted to *Health Services Research*.

Howell, Embry M., Nancy Heiser, and Mary Harrington. "A Review of Recent Findings on Substance Abuse Treatment for Pregnant Women." Submitted to *Journal of Substance Abuse Treatment*.

Chasnoff, Ira, Kimberly Neuman, and Craig Thornton. "Predicting Drug and Alcohol Use Among Pregnant Women." In preparation.

APPENDIX C

MAPS OF DEMONSTRATION AND COMPARISON AREAS

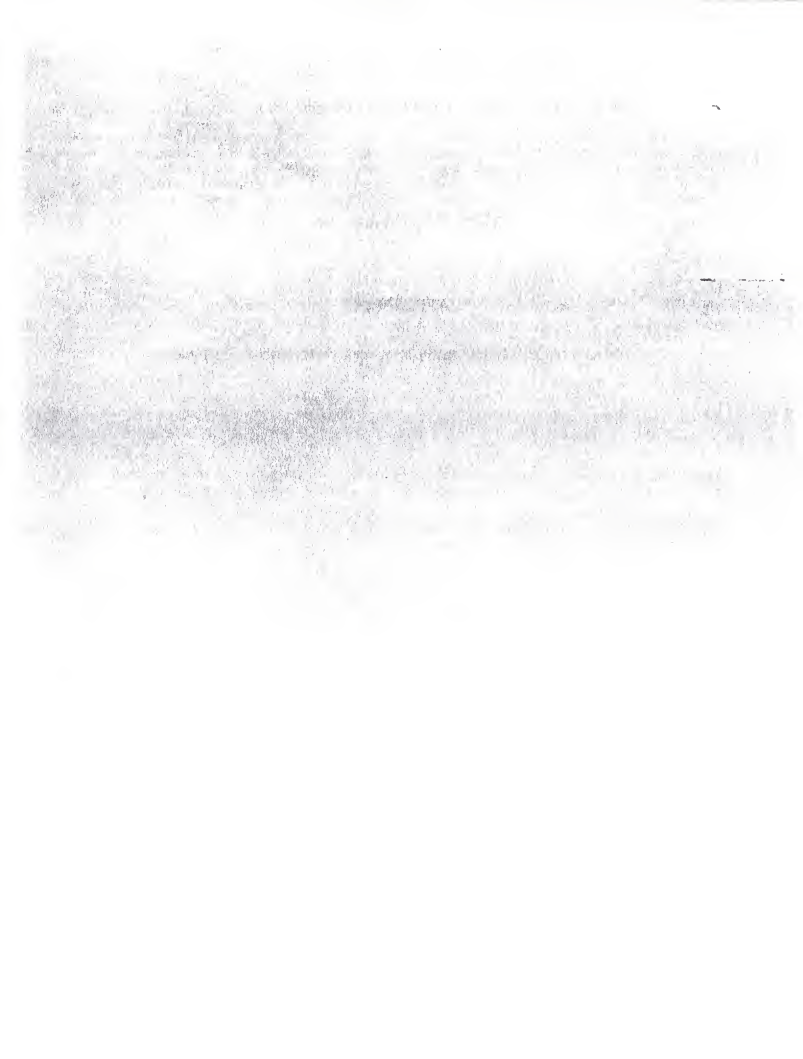


Figure 1: Washington

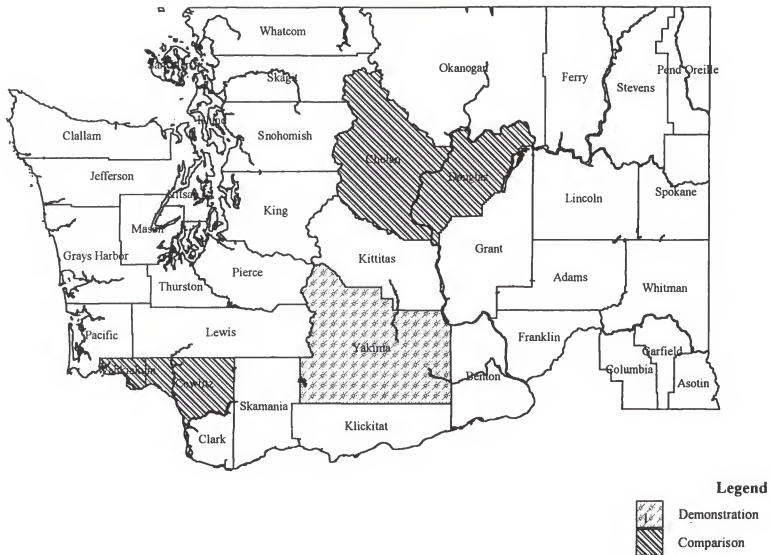




Figure 2: South Carolina

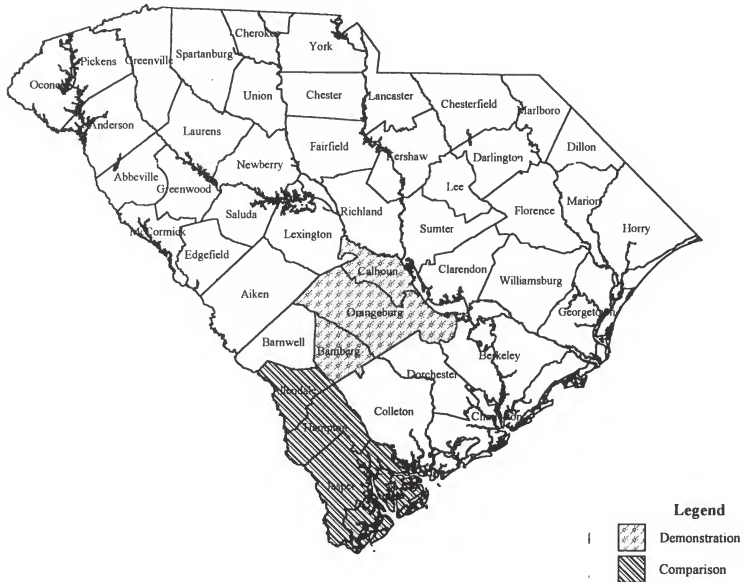




Figure 3: Baltimore, Maryland

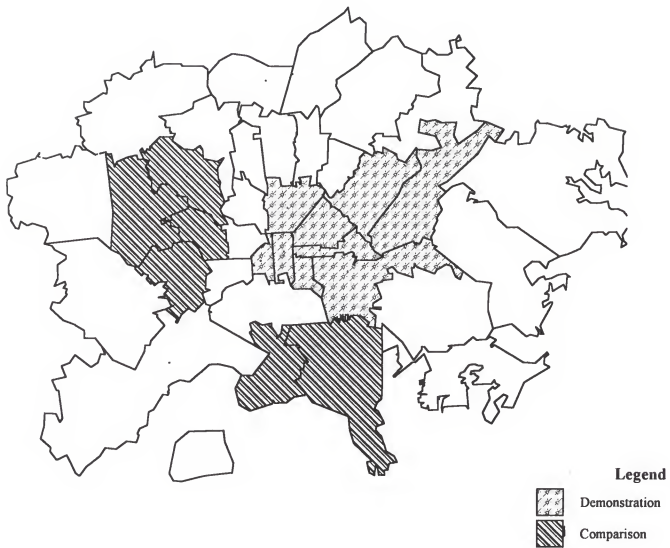
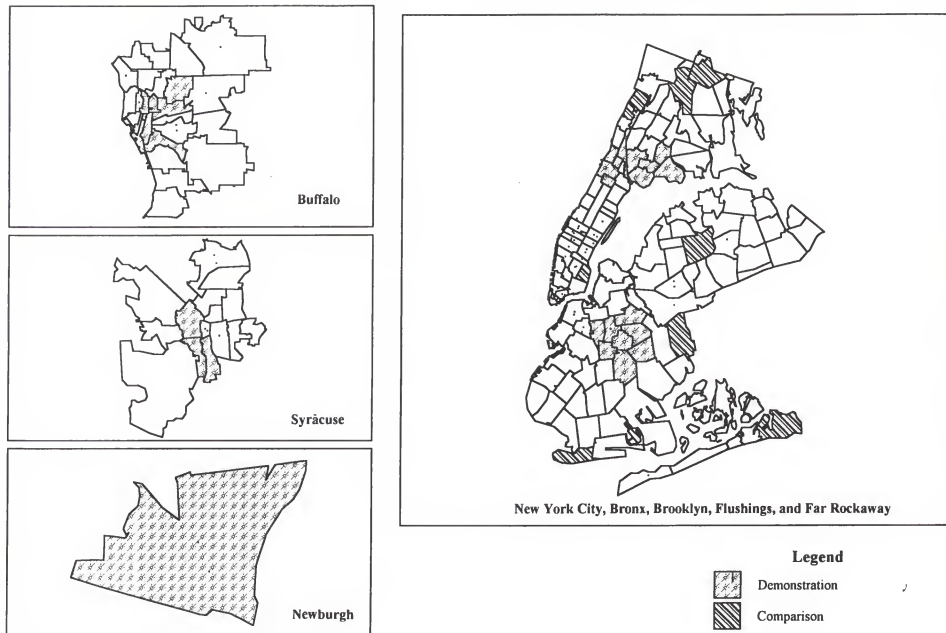




Figure 4: New York State



APPENDIX D

EXCLUSIONS FROM THE ANALYSIS FILES



EXCLUSIONS FROM ANALYSIS FILES

A. OVERVIEW

The data collected for this project differed from one state to another in scope (e.g., whether state substance abuse treatment services files were available); time periods covered; linking methodology (e.g., whether the state started with births from Vital Records and looked for matched Medicaid records or started with Medicaid claims and looked for matched Vital Records); and how files were defined (e.g., what is included on an “inpatient” file). Because of these differences, the processes we used to develop files including only mothers with identifiable birth information differed somewhat from state to state.

In each state, we excluded records from the study. Records were excluded from the study for the following reasons:

- ***Births not in correct year.*** Births on the files we received which did not occur in the analysis period were excluded.
- ***Fetal deaths (Washington, South Carolina and Massachusetts only).*** Fetal deaths were excluded.
- ***Mothers with two deliveries in the same year.*** Mothers with more than one delivery in a single study year were excluded because of definition problems with overlapping prenatal and postnatal months.
- ***Unable to define “Key Delivery” stay using Medicaid claims.*** If we were unable to find a hospital stay including a birth (identified through diagnosis codes, procedure codes, accommodation codes, or DRG), we excluded the woman.
- ***Different mothers matching to the same babies (Maryland only).*** Information for linking could not uniquely identify a mother/baby pair.
- ***“Key Delivery” stay span dates do not include date of birth from Vital Records.*** We required the birth date identified on the Vital Records file to be within three days of the span dates (admission through discharge dates) of the delivery stay (identified through diagnosis codes, procedure codes, accommodation codes, or DRG).
- ***Mothers not in demonstration areas, comparison areas, or in the demonstration project.*** Women residing outside of the demonstration and comparison areas or who were not in a demonstration project who were not included in the study.
- ***Infants not linked to any mothers.*** Records for infants who did not match to any mother’s record were excluded. (This was a significant issue in New York, where no explanation for the problem was uncovered.)

B. SPECIFIC EXCLUSIONS FROM EACH STUDY STATE

MARYLAND

	File Year		
	7/92-6/93	7/93-12/94	1995*
Total Mothers on Original File	4,465	5,258	6,436
Different mothers matching to the same babies	(8)	(4)	N/A*
Unable to define "Key Delivery" stay using Medicaid claims or "Key Delivery" stay span dates do not include date of birth from Vital Records	(86)	(240)	N/A*
Mothers with two deliveries in year	(1)	(14)	N/A*
Mothers not in demonstration area, comparison are, or demonstratino project	0	(2)	N/A*
Infants not linked to any mothers	(325)	0	N/A*
Final Number of Mothers in Study	4,045	4,998	30*

* For 1995, only mothers in Better Chance project are kept in the study with no exclusion.

MASSACHUSETTS

	File Year
	10/92-08/96
Total Mothers on Original File	628
Fetal Death	(65)
Unable to define "Key Delivery" stay using Medicaid claims or "Key Delivery" stay span dates do not include date of birth from Vital Records	(187)
Infants not linked to any mothers	(1)
Final Number of Mothers in Study	375

NEW YORK

	File Year		
	7/93-9/93	10/93-12/94	1995
Total Mothers on Original File	5,591	34,946	22,946
Births not in file year	(36)	0	0
Unable to define "Key Delivery" stay using Medicaid claims or "Key Delivery" stay span dates do not include date of birth from Vital Records	(93)	(1,260)	(772)
Mothers with two deliveries in year	(7)	(339)	(149)
Mothers not in demonstration area, comparison are, or demonstration project	(1)	0	(6)
Infants not linked to any mothers	0	(6,988)	(3,621)
Final Number of Mothers in Study	5,454	26,359	18,398

SOUTH CAROLINA

	File Year			
	1992	1993	1994	1995
Total Mothers on Original File	2,579	2,425	2,404	2,298
Fetal deaths	(30)	(30)	(19)	(18)
Unable to define "Key Delivery" stay using Medicaid claims or "Key Delivery" stay span dates do not include date of birth from Vital Records	(184)	(145)	(89)	(92)
Mothers with two deliveries in year	0	(1)	(1)	0
Infants not linked to any mothers	(152)	(133)	(209)	(209)
Final Number of Mothers in Study	2,213	2,116	2,086	1,979

WASHINGTON

	File Year			
	1992	1993	1994	1995
Total Mothers on Original File	4,592	4,807	4,842	4,772
Fetal deaths	(31)	(37)	(20)	(23)
Unable to define "Key Delivery" stay using Medicaid claims or "Key Delivery" stay span dates do not include date of birth from Vital Records	(138)	(142)	(640)	(1,203)
Final Number of Mothers in Study	4,423	4,628	4,182	3,546

C. MISSING VARIABLES

The following variables are set to missing:

- *For mothers without links to infants For moms not linked to infants*, the following variables were set to missing: delivery cost, postnatal cost, total cost, neonatal intensive care cost, infant hospital visits and pediatric visits.
- *For multiple births*, the following variables were set to missing: infant sex, birth weight, APGAR scores, abnormal conditions of newborn indicator, congenital anomaly indicator, delivery cost, postnatal cost, total cost, neonatal intensive care cost, infant hospital visits and pediatric visits.
- *For deliveries not linked to vital records*, all vital statistics variables were set to missing.

The number of women in these categories are presented below by state. Women were excluded from the analysis of variables above that were set to missing.

MARYLAND

	File Year		
	7/92-6/93	7/93-12/94	1995*
Mothers not linked to Infants	223	0	0
Multiple Births	44	66	0

Deliveries not linked to Vital Records	436	0	6
--	-----	---	---

* For 1995, only moms in Better Chance project are kept in the study.

MASSACHUSETTS

	File Year
	10/92-08/96
Mothers not linked to Infants	94
Multiple Births	6
Deliveries not linked to Vital Records	28

NEW YORK

	File Year		
	7/93-9/93	10/93-12/94	1995
Mothers not linked to Infants	409	4,895	1,328
Multiple Births	71	367	242
Deliveries not linked to Vital Records	315	838	488

SOUTH CAROLINA

	File Year			
	1992	1993	1994	1995
Mothers not linked to Infants	86	78	103	127
Multiple Births	32	28	34	26
Deliveries not linked to Vital Records	38	42	31	53

WASHINGTON

	File Year				
	1991	1992	1993	1994	1995
Mothers not linked to Infants	447	650	423	242	163
Multiple Births	14	43	42	48	29
Deliveries not linked to Vital Records	0	0	0	0	0

APPENDIX E

ALGORITHM FOR IDENTIFYING PREGNANT SUBSTANCE ABUSERS

WASHINGTON

Taking the broadest possible approach to identifying pregnant substance abusers, we used indicators from Medicaid claims, birth certificate/vital records files, and substance abuse treatment data, wherever available. The tables on the following pages give details of the variables we used from each file. If any indicator was found for an individual, she was identified as a pregnant substance abuser.

LIST OF TABLES:

Table 1 Overview of Relevant Variables

Table 2 Variables Used to Identify Pregnant Substance Abusers: Maryland

Table 3 Variables Used to Identify Pregnant Substance Abusers: New York

Table 4 Variables Used to Identify Pregnant Substance Abusers: South Carolina

Table 5 Variables Used to Identify Pregnant Substance Abusers: Washington

NOTE: Since all individuals in the Massachusetts project are identified when they are admitted to drug detoxification and are known to be pregnant, there is no need to identify pregnant substance abusers on the files.

LIST OF FOOTNOTES:

Footnote 1: List of ICD-9-CM Diagnosis Codes Used to Identify Drug and Alcohol Abuse on Medicaid Claims - All States

Footnote 2: Procedure Codes Used to Define Substance Abuse in Maryland

Footnote 3: Revenue Codes Used to Define Substance Abuse Services on Inpatient Claims in Maryland and South Carolina

Footnote 4: Diagnosis Related Groups (DrGs) Used to Define Alcohol and Drug Abuse as Reason for Hospitalization in Maryland, New York, South Carolina, and Washington

Footnote 5: Rate Codes Used to Identify Drug and Alcohol Abuse in New York State

Footnote 6: Provider Specialty Codes Used to Identify Substance Abuse in New York

Footnote 7: Procedure Codes Indicating Substance Abuse Treatment on Maryland HMO Encounter Records (Though No Instances of These Codes Were Found on the Files)

TABLE E.1

OVERVIEW OF RELEVANT DATA VARIABLES

Variable	Definition
Women who are pregnant substance abusers may be identified in Medicaid claims/encounter data; through vital records/birth certificate data; and/or from information on the state's substance abuse treatment system.	In some states the algorithm or specific codes used for identifying pregnant substance abusers varied by study year, owing to changes in data systems. Where such differences occurred, the algorithm is described separately for each study time period.
MEDICAID CLAIMS OR ENCOUNTER DATA	
Indicator of substance abuse on Medicaid claims for prenatal period	These variables together provide the broadest sweep at finding substance abusers in claims data. Claims are searched for diagnoses indicating substance abuse or treatment of substance abuse. Claims indicating drug abuse are noted separately from those indicating alcohol abuse. Claims where diagnoses or treatment codes do not differentiate drug from alcohol abuse, or which indicate a person was abusing both drugs and alcohol, are also tracked separately. An identified individual's record will have all appropriate flags set; that is the flag for drug abuse, the flag for alcohol abuse, and the flag for drug and/or alcohol abuse may each be set for a particular patient.
Indicator of substance abuse on Medicaid claims for the delivery period	
Indicator of substance abuse on Medicaid claims for the postnatal period (Women with claims indicating substance abuse in the postnatal period are likely to have had the problem during their pregnancy even if the problem was not known to their medical providers during the pregnancy.)	
VITAL RECORDS/BIRTH CERTIFICATES	
Number of Weekly Drinks	The birth certificate includes a question as to whether a delivering mother drank alcohol, and if so, how many weekly drinks she consumed. We identify as a pregnant substance abuser anyone who reported 10 or more drinks.
Indication of Drugs at Infant's Birth	Any mother of a baby whose birth certificate indicates drug withdrawal in the newborn is flagged. Note that this question is <i>not</i> included in the national standard birth certificate and thus is not part of all states' birth certificates.

TABLE E.1 (continued)

Variable	Definition
Indicator of Fetal Alcohol Syndrome	Any mother of a baby whose birth certificate indicates fetal alcohol syndrome in the newborn is flagged. Note that this question <i>is</i> included in the national standard birth certificate.
SUBSTANCE ABUSE TREATMENT RECORDS	
Evidence of Treatment in State's Substance Abuse Treatment System	Presence of any record in the state's substance abuse treatment system is taken as evidence of substance abuse. These records can be from the prenatal or postnatal periods.
Type of Substances Used	We capture the varying codes used by each state to identify substances used before or after delivery.
Method of Ingestion	We capture the varying codes used by each state to identify the method of ingestion of drugs reported either before or after delivery.

TABLE E.2
METHOD FOR IDENTIFYING SUBSTANCE ABUSERS: MARYLAND

Variable	Definition
MEDICAID CLAIMS OR ENCOUNTER DATA	
Indicator of substance abuse on Medicaid claims for prenatal period	<p>1991-1995</p> <p>Separate indicators are set if patient has evidence of use of drugs (DRUGFLG1), alcohol (ALCOFLG1), or drugs and/or alcohol (DORAFLG1) during the prenatal period, based on the beginning service date.</p> <p>Claims are selected by:</p> <ul style="list-style-type: none"> - Principal or secondary diagnoses of drug or alcohol use. All claim types are searched. See footnote 1 for a complete list of diagnosis codes used. <p>or</p> <ul style="list-style-type: none"> - Diagnosis Related Groups (DRGs) indicating drug or alcohol treatment (detoxification and/or rehabilitation treatment) from inpatient claims. See footnote 4 for a list of DRGs used. Note that the DRGs vary by state. <p>or</p> <ul style="list-style-type: none"> - Procedure codes indicating treatment for drug or alcohol abuse on physician, inpatient, or outpatient claims. See footnote 2 for procedure codes used in Maryland. <p>or</p> <ul style="list-style-type: none"> - Revenue codes indicating accommodations in drug or alcohol treatment settings or detoxification or rehabilitation from inpatient claims. See footnote 3. <p>or</p> <ul style="list-style-type: none"> - Physician Claims (Service type = 1) and Physician Specialty = 92 (contract drug clinic) <p>or</p> <ul style="list-style-type: none"> - Service Code = 10 (drug addiction)
Indicator of substance abuse on Medicaid claims for the delivery period	<p>1991-1995</p> <p>Indicators DRUGFLG2, ALCOFLG2, DORAFLG2 are defined as above based on any claim during the delivery period.</p>
Indicator of substance abuse on Medicaid claims for the postnatal period	<p>1991-1995</p> <p>Indicators DRUGFLG2, ALCOFLG2, DORAFLG2 are defined as above based on any claim during the postnatal period.</p>

TABLE E.2 (continued)

Variable	Definition
VITAL RECORDS/BIRTH CERTIFICATES	
Number of Weekly Drinks	1991-1995 AQUAN2 (quantity of alcohol) is number of weekly drinks. All cases with 10 or more drinks are flagged.
Indication of Drugs at Infant's Birth	1991-1995 Not available
Indicator of Fetal Alcohol Syndrome	1991-1995 4th "Abnormal Conditions of Newborn" field from birth certificate. ¹
SUBSTANCE ABUSE TREATMENT RECORDS	
1991-1995: No substance abuse treatment records available from Maryland. Therefore no pregnant substance abusers were identified via substance abuse treatment records.	

¹Although the Maryland documentation shows that fetal alcohol syndrome is abnormal condition 03 on the birth certificate, the first digit of the Abnormal Conditions of Newborn field on the file is actually the '00' indicator (None). This pushes the '01' through '09' indicators one position away, making the '03' indicator reside in the 4th position. This was verified with a frequency on the entire field.

TABLE E.3

METHOD FOR IDENTIFYING SUBSTANCE ABUSERS: NEW YORK

Variable	Definition
MEDICAID CLAIMS OR ENCOUNTER DATA	
Indicator of substance abuse on Medicaid claims for prenatal period	<p>1992 - 1995</p> <p>Separate indicators are set if patient has evidence of use of drugs (DRUGFLG1), alcohol (ALCOFLG1), or drugs and/or alcohol (DORAFLG1) during the prenatal period, based on the beginning service date.</p> <p>Claims are selected by:</p> <ul style="list-style-type: none"> - Principal or secondary diagnoses of drug or alcohol use. All claim types from SURS claims file are searched. See footnote 1 for a complete list of diagnosis codes used. <p>or</p> <ul style="list-style-type: none"> - Diagnosis Related Groups (DRGs) indicating drug or alcohol treatment (detoxification and/or rehabilitation treatment) from SURS inpatient claims. See footnote 4 for a list of DRGs used. Note that the DRGs vary by state. <p>or</p> <ul style="list-style-type: none"> - Rate codes indicating treatment for drug or alcohol abuse for all claim types. See footnote 5 for rate codes. <p>or</p> <ul style="list-style-type: none"> - Provider specialty codes indicating provider focus on substance abuse treatment. All claim types are searched. See footnote 6 for provider specialty codes.
Indicator of substance abuse on Medicaid claims for the delivery period	<p>1992 - 1995</p> <p>Indicators DRUGFLG2, ALCOFLG2, DORAFLG2 are defined as above based on any claim during the delivery period.</p>
Indicator of substance abuse on Medicaid claims for the postnatal period	<p>1992 - 1995</p> <p>Indicators DRUGFLG2, ALCOFLG2, DORAFLG2 are defined as above based on any claim during the postnatal period.</p>
VITAL RECORDS/BIRTH CERTIFICATES	
Number of Weekly Drinks	<p>1992: not available.</p> <p>1993 forward: The variable ALK on the vital records file is a 2-digit field for the number of drinks. All cases with 10 or more drinks are flagged. (See documentation for Number 76B on the Birth Certificate.) Before FY93 this variable is a 1-digit indicator and we did not use it.</p>

TABLE E.3 (continued)

Variable	Definition
Indication of Drugs at Infant's Birth	1992: missing 1993-1995: 14th indicator of abnormal conditions of newborn (ABCOND) is drug withdrawal syndrome.
Indicator of Drugs Used (variable unique to New York data)	1992-1995: The variable DRUGS contains 10 indicators. We set an indicator called DRUGS_VS if any of the DRUGS indicators 1-6 were turned on: 1=heroin, 2=cocaine/crack, 3=methadone, 4=marijuana, 5=amphetamines, 6=sedatives/tranquilizers/anticonvulsants). This is documented as Number 76B "other risk factors", item 40A "substance/medication used during this pregnancy."
Indicator of Fetal Alcohol Syndrome	1991-1992: Not on analytic file 1993-1995: 27th indicator of anomaly on birth certificate
SUBSTANCE ABUSE TREATMENT RECORDS	
Presence of substance abuse treatment record is taken as evidence of substance abuse	1992: Set flag if there is an OASAS record for the individual in the prenatal or postnatal period.
Type of Substances Used	1991-1995: Primary, secondary, tertiary substances from OASAS file for beginning dates of service closest to delivery. Codes are: 1=heroin, 2=non prescription methadone, 3=other opiate/synthetic, 4=alcohol, 5=barbiturate, 6=other sedative/hypnotic, 7=methamphetamine (e.g., ice), 8=other amphetamine, 9=crack, 10=cocaine, 11=other stimulant, 12=marijuana/hashish, 13=PCP, 14=other hallucinogen, 15=benzodiazepine, 16=other tranquilizer, 17=inhalant, 18=over-the-counter, 98=other
Method of Ingestion	From route of administration, with codes of: 1=oral, 2=smoking, 3=inhalation, 4=injection, 8=other

TABLE E.4

METHOD FOR IDENTIFYING SUBSTANCE ABUSERS: SOUTH CAROLINA

Variable	Definition
MEDICAID CLAIMS DATA	
Indicator of substance abuse on Medicaid claims for prenatal period	<p>1991-1995</p> <p>Separate indicators are set if patient has evidence of use of drugs (DRUGFLG1), alcohol (ALCOFLG1), or drugs and/or alcohol (DORAFLG1) during the prenatal period, based on the beginning service date.</p> <p>Claims are selected by:</p> <ul style="list-style-type: none"> - Primary or secondary diagnosis or "other" diagnoses (up to 8 diagnoses are available on hospital claims only) of drug or alcohol use. All claim types are searched. See footnote 1 for a complete list of diagnosis codes used. <p>or</p> <ul style="list-style-type: none"> - Provider specialty = 90 (alcohol and drug abuse). <p>or</p> <ul style="list-style-type: none"> - Diagnosis Related Groups (DRGs) indicating drug or alcohol treatment (detoxification and/or rehabilitation treatment) from inpatient claims. See footnote 4 for a list of DRGs used. Note that the DRGs vary by state. <p>or</p> <ul style="list-style-type: none"> - Revenue codes indicating accommodations in drug or alcohol treatment settings or detoxification or rehabilitation from inpatient claims. See footnote 3. <p>or</p> <ul style="list-style-type: none"> - Procedure code S8007 (medically monitored detoxification)
Indicator of substance abuse on Medicaid claims for the delivery period	<p>1991-1995</p> <p>Indicators DRUGFLG2, ALCOFLG2, DORAFLG2 are defined as above based on any claim during the delivery period.</p>
MEDICAID CLAIMS DATA	
Indicator of substance abuse on Medicaid claims for the postnatal period	<p>1991-1995</p> <p>Indicators DRUGFLG2, ALCOFLG2, DORAFLG2 are defined as above based on any claim during the postnatal period.</p>
VITAL RECORDS DATA (FROM BIRTH CERTIFICATES)	
Number of Weekly Drinks	<p>1991-1995</p> <p>L1 = less than 1, 01-98 = quantity, 99 = unknown, unreported - use values L1, 1-98. All cases with 10 or more drinks are flagged.</p>

TABLE E.4 (continued)

Variable	Definition
Indication of Drugs at Infant's Birth	Not available - birth certificate allows coding of congenital anomalies and risk factors, but available codes do not include any code for drug or alcohol exposure, withdrawal, etc. Furthermore, file available to us merely shows whether any indicator was selected, and not which one.
Indicator of Fetal Alcohol Syndrome	Not available - birth certificate allows coding of congenital anomalies and risk factors, but available codes do not include any code for drug or alcohol exposure, withdrawal, etc. Furthermore, file available to us merely shows whether any indicator was selected, and not which one.
SUBSTANCE ABUSE TREATMENT RECORDS	
Presence of any substance abuse treatment record is taken as evidence of substance abuse	1991: no substance abuse treatment data available. 1992: DAODAS data for 1992 shows only 4 mothers with treatment during prenatal or postnatal period. We have created a monthly treatment file by merging the treatments identified from the claims and the treatments with the DAODAS records. 1993-1995: Presence of substance abuse treatment record during prenatal period is taken as evidence of substance abuse. Thus, presence of any DAODAS record for the individual during the prenatal period is sufficient. Note: data not yet available.
Type of Substances Used	1992-1995: primary, secondary, tertiary substances from DAODAS file. Type problem codes were selected and recorded as follows: 1=heroin, 2=methadone, 4=other opiates and synthetics, 6=alcohol, 7=barbiturates, 9=other sedatives or hypnotics, 10=methamphetamine, 11=other amphetamines, 12=other stimulants, 13=cocaine/crack, 14=marijuana/hashish, 15=hallucinogens except PCP, 16=inhalants, 17=over-the-counter, 18=benzodiazepine, 19=other tranquilizers, 20=PCP, 21=other drug. Note that codes 22-99 (non-drug problems) were not used.
SUBSTANCE ABUSE TREATMENT RECORDS	
Method of Ingestion	1992-1995: route of administration. Codes are: 1=oral, 2=smoking, 3=inhalation, 4=injection (IV or intramuscular), 5=other

TABLE E.5

METHOD FOR IDENTIFYING SUBSTANCE ABUSERS: WASHINGTON

Variable	Definition
MEDICAID CLAIMS OR ENCOUNTER DATA	
Indicator of substance abuse on Medicaid claims for prenatal period	<p>1991-1995</p> <p>Separate indicators are set if patient has evidence of use of drugs (DRUGFLG1), alcohol (ALCOFLG1), or drugs and/or alcohol (DORAFLG1) during the prenatal period, based on the beginning service date.</p> <p>Claims are selected by:</p> <ul style="list-style-type: none"> - Principal or secondary diagnoses of drug or alcohol use. All claim types are searched. See footnote 1 for a complete list of diagnosis codes used. or - Diagnosis Related Groups (DRGs) indicating drug or alcohol treatment (detoxification and/or rehabilitation treatment) from inpatient claims. See footnote 4 for a list of DRGs used. Note that the DRGs vary by state. or - Provider number range (position 5-10) of 199xxx (drug abuse paid to county auditor) as evidence of drug abuse. or - Category of service = 96 (alcohol detoxification) as evidence of alcohol abuse or - Provider specialty = 92 (detoxification - hospital) or 93 (detoxification - freestanding) as evidence of alcohol and/or drug abuse or - Claims with CPT code group = 27 (drug abuse and treatment)² or - Procedure code = 0076M or 0077M (monthly case management for chemically-dependent pregnant woman)
Indicator of substance abuse on Medicaid claims for the delivery period	Indicators DRUGFLG2, ALCOFLG2, DORAFLG2 are defined as above based on any claim during the delivery period.

²This group includes the following specific procedures: drug abuse, chemical dependency assessment, DASA treatment, non-emergency admission to inpatient psychiatric care for patient <21 years of age.

TABLE E.5 (continued)

Variable	Definition
MEDICAID CLAIMS OR ENCOUNTER DATA	
Indicator of substance abuse on Medicaid claims for the postnatal period	Indicators DRUGFLG3, ALCOFLG3, DORAFLG3 are defined as above based on any claim during the postnatal period.
VITAL RECORDS/BIRTH CERTIFICATES	
Number of Weekly Drinks	1991-1995 Number of drinks where 0 = none, 98 = drinks but amount not specified, 99 = unknown, all other = quantity. All cases with 10 or more drinks are flagged.
Indication of Drugs at Infant's Birth	1991-1995 From birth certificate (STAT file) variable STATCODE, indicator set to yes if = abn06 (drug withdrawal syndrome in newborn) is set.
Indicator of Fetal Alcohol Syndrome	1991-1995 From birth certificate (STAT file) variable STATCODE, indicator set to yes if = abn03 (fetal alcohol syndrome) is set.
SUBSTANCE ABUSE TREATMENT RECORDS	
Presence of any substance abuse treatment record is taken as evidence of substance abuse	1991-1995 Presence of any TARGET/SAMS record if the treatment service dates covered any part of the prenatal period, even if the treatment started before the prenatal period or ended after the prenatal period.

TABLE E.5 (continued)

Variable	Definition
SUBSTANCE ABUSE TREATMENT RECORDS	
Type of Substances Used	1991-1995 Primary, secondary, tertiary substances from TARGET/SAMS SUBUSED file records closest to delivery. ³ Code values are: 01=heroin, 02=non-prescription methadone, 03=other opiates and synthetics, 04=alcohol, 05=barbiturates, 06=other sedatives or hypnotics, 07=amphetamines, 08=cocaine, 09=marijuana/hash, 10=hallucinogens, 11=inhalants, 12=over the counter, 13=tranquilizers, 14=PCP, 15=methamphetamine, 16=other stimulant, 17=benzodiazepines, 18=prescribed methadone, 19=tobacco products (can not be primary drug), 98=other, 99=substance unknown.
Method of Ingestion	Administration codes: O=oral, S=smoking, H=inhalation, J=injection, X=other

³There are a maximum of three substances noted for each client for each milestone date: 1=primary; 2=secondary; 3=tertiary. Linking the discharge data from the DISCHARGE file to identify approximate discharge date, we used records for substance abuse treatment services that covered any part of the prenatal or postnatal period. In each case, we selected the record with the milestone date closest to delivery and worked backward or forward to fill in additional substance information. That is, if the prenatal record closest to delivery did not have tertiary drug information, we used information from the record prior to it. Note that using treatment service dates does not mean for certain that the women received treatment.

FOOTNOTES FOR APPENDIX E

These footnotes apply to all states, except as indicated in their headings. Where possible, coding differentiates drug abuse from alcohol abuse. However, some codes indicate drug *and/or* alcohol abuse without differentiating.

LIST OF FOOTNOTES:

- Footnote 1: List of ICD-9-CM Diagnosis Codes Used to Identify Drug and Alcohol Abuse on Medicaid Claims - All States
- Footnote 2: Procedure codes used to define substance abuse in Maryland
- Footnote 3: Revenue codes used to define substance abuse services on inpatient claims in Maryland and South Carolina
- Footnote 4: Diagnosis Related Groups (DRGs) used to define Alcohol and Drug Abuse as reason for hospitalization in Maryland, New York, South Carolina, and Washington
- Footnote 5: Rate Codes Used to Identify Drug and Alcohol Abuse In New York State
- Footnote 6: Provider Specialty Codes used to identify substance abuse in New York
- Footnote 7: Procedure codes indicating substance abuse treatment on Maryland HMO encounter records (though no instances of these codes were found on the files)

FOOTNOTE 1

LIST OF ICD-9-CM DIAGNOSIS CODES USED TO IDENTIFY DRUG AND ALCOHOL ABUSE ON MEDICAID CLAIMS - ALL STATES

For this project drug abuse is defined as use of illicit (rather than prescription) drugs. Evidence of use of alcohol deterrents and methadone is also included.

ICD-9-CM CODES USED TO DEFINE DRUG ABUSE:

292xx -drug psychoses (including drug withdrawal syndrome, drug-induced mental disorders, organic brain syndrome associated with consumption of drugs)
304xx where 5th digit is not 3 - drug dependence (5th digit =3 means problem is in remission) (although this range of codes includes licit as well as illicit drugs, the full range is used because all are described as drug dependence)
3052x - 3059x where 5th digit is not 3 - nondependent abuse of drugs (5th digit =3 means problem is in remission) (although this range of codes includes licit as well as illicit drugs, the full range is used because all are described as drug abuse) (tobacco use is excluded)
3576x - polyneuropathy due to drugs
6483x - drug dependence complicating pregnancy, childbirth, or the puerperium
6555x - suspected damage to fetus from drugs
76072 - noxious influences affecting fetus via placenta or breast milk - narcotics
76073 - noxious influences affecting fetus via placenta or breast milk - hallucinogenic agents
76075 - noxious influences affecting fetus via placenta or breast milk - cocaine
7795x - drug withdrawal syndrome in newborn
9650x - poisoning by opiates and related narcotics (heroin, methadone, codeine, meperidine, morphine, opium)
9696x - poisoning by psychodysleptics/hallucinogens (cannabis, LSD, marijuana, mescaline, psilocin, psilocybin)
E8500- E8502 - accidental poisoning by heroin, methadone, other opiates and narcotics (heroin, methadone, codeine, meperidine, morphine, opium)
E8541 - accidental poisoning by psychodysleptics/hallucinogens (cannabis, LSD, marijuana, mescaline, psilocin, psilocybin)
E9350 - E9352x - drugs causing adverse effects in therapeutic use - heroin, methadone, other opiates and narcotics (heroin, methadone, codeine, meperidine, morphine, opium)
E9396 - drugs causing adverse effects in therapeutic use - psychodysleptics/hallucinogens (cannabis, LSD, marijuana, mescaline, psilocin, psilocybin)

ICD-9-CM CODES USED TO DEFINE ALCOHOL ABUSE:

291xx - alcohol psychoses (including alcohol withdrawal, alcoholic dementia, and pathological intoxication)

303xx where 5th digit is not 3 -- alcohol dependence syndrome (5th digit =3 means problem is in remission)

Footnote 1 (continued)

ICD-9-CM CODES USED TO DEFINE ALCOHOL ABUSE (continued):

3050x where 5th digit is not 3- nondependent abuse of drugs - alcohol abuse (5th digit =3 means problem is in remission)

3575x - alcoholic polyneuropathy

4255x - alcoholic cardiomyopathy

5353x - alcoholic gastritis

5712x - 5713x - alcoholic cirrhosis of liver/ unspecific alcoholic liver damage

6554x - suspected damage to fetus from disease in the mother - alcohol addiction, listeriosis, toxoplasmosis

(Note: although 6554x includes listeriosis/toxoplasmosis, we have decided to include it as it is the only code available to report effects of alcohol addiction on the fetus as there is no other code for this.)

76071 - noxious influences affecting fetus via placenta or breast milk - alcohol - fetal alcohol syndrome

E8600 - accidental poisoning by alcoholic beverages

E9473 - drugs causing adverse effects in therapeutic use - alcohol deterrents

ICD-9-CM CODES USED TO DEFINE EITHER ALCOHOL OR DRUG ABUSE:

76070 - noxious influences affecting fetus via placenta or breast milk, unspecified

FOOTNOTE 2

PROCEDURE CODES USED TO DEFINE SUBSTANCE ABUSE IN MARYLAND⁴

PROCEDURE CODES USED TO DEFINE DRUG ABUSE:

W1730 - Initial Case Plan - Pregnant and Drug
W1731 - Revised Case Plan - Pregnant and Drug
W1732 - Ongoing Case Plan - Pregnant and Drug
W9100 - outpatient drug counseling, individual
W9101 - outpatient drug abuse counseling, group
W9108 - Outpatient drug abuse counseling - individual (Methadone)
W9109 - outpatient drug abuse counseling - group (methadone)
W9993 - Methadone dispensed - weekly drug abuse (free)
I9445 - ICD-9-CM procedure code -drug addiction counseling
I9454 - ICD-9-CM procedure code - referral for drug addiction rehabilitation
I9464 - ICD-9-CM procedure code - alcoholism counseling [Note: this classification was in error - this code should be used to define alcohol abuse, not drug abuse.]
I9465 - ICD-9-CM procedure code - drug detoxification
I9466 - ICD-9-CM procedure code - drug rehabilitation and detoxification

PROCEDURE CODES USED TO DEFINE ALCOHOL ABUSE:

I9446 - ICD-9-CM procedure code - alcoholism counseling
I9453 - ICD-9-CM procedure code - referral for alcoholism rehabilitation
I9461 - ICD-9-CM procedure code - alcohol rehabilitation
I9462 - ICD-9-CM procedure code - alcohol detoxification
I9463 - ICD-9-CM procedure code - alcohol rehabilitation and detoxification

PROCEDURE CODES USED TO DEFINE DRUG AND/OR ALCOHOL ABUSE:

I9467 - ICD-9-CM combination code for alcohol/drug rehabilitation
I9468 - ICD-9-CM combination code for alcohol/drug detoxification
I9469 - ICD-9-CM combination code for alcohol/drug rehabilitation/detoxification

⁴None of the procedure codes which were documented as substance abuse treatment services for HMOs in Maryland were found on any HMO encounter records. The list of codes we looked for is in footnote 8.

FOOTNOTE 3

REVENUE CODES USED TO DEFINE SUBSTANCE ABUSE SERVICES ON INPATIENT CLAIMS IN MARYLAND AND SOUTH CAROLINA

Note: In all cases an "x" means any value or blank is allowed in the field. In Maryland, revenue codes may appear as the three or four digits shown below, or each code may be preceded by either an "R" or a "U."

REVENUE CODE USED TO DEFINE DRUG ABUSE:

944x - other therapeutic services - drug rehabilitation

REVENUE CODE USED TO DEFINE ALCOHOL ABUSE:

945x - alcohol rehabilitation

REVENUE CODES USED TO DEFINE ALCOHOL AND/OR DRUG ABUSE:

116 - room and board, private - detoxification

126 - room and board, semi-private - detoxification

136 - room and board, semi-private - detoxification

146 - room and board, private - detoxification

156 - room and board, ward - detoxification

FOOTNOTE 4

DIAGNOSIS RELATED GROUPS (DRGS) USED TO DEFINE ALCOHOL AND DRUG ABUSE AS REASON FOR HOSPITALIZATION IN MARYLAND, NEW YORK, SOUTH CAROLINA, AND WASHINGTON

DRG CODES USED TO DEFINE DRUG ABUSE:

- 449-451 - poisoning and toxic effects of drugs **Codes used in MA and SC only**
- 743 - opioid abuse or dependence - left against medical advice **Code used in NY and WA only**
- 744 - opioid abuse or dependence - with complications/comorbidities **Code used in NY and WA only**
- 745 - opioid abuse or dependence - without complications/comorbidities **Code used in NY and WA only**
- 746 - cocaine or other drug abuse or dependence - left against medical advice **Code used in NY and WA only**
- 747 - cocaine or other drug abuse or dependence - with complications/comorbidities **Code used in NY and WA only**
- 748 - cocaine or other drug abuse or dependence - without complications/comorbidities **Code used in NY and WA only**

DRG CODES USED TO DEFINE ALCOHOL ABUSE:

- 749 - alcohol abuse or dependence - left against medical advice **Code used in NY and WA only**
- 750 - alcohol abuse or dependence - with complications/comorbidities **Code used in NY and WA only**
- 751 - alcohol abuse or dependence - without complications/comorbidities **Code used in NY and WA only**

DRG CODES USED TO DEFINE ALCOHOL AND/OR DRUG ABUSE:

- 433 - alcohol/drug abuse or dependence, left against medical advice **Code used in MA and SC only**
- 434 - alcohol/drug abuse or dependence, detoxification or other symptoms treated with comorbidities/complications **Code used in MA and SC only**
- 435 - alcohol/drug abuse or dependence, detoxification or other symptoms treated without comorbidities/complications **Code used in MA and SC only**
- 436 - alcohol/drug abuse or dependence, with rehabilitation therapy **Code used in MA and SC only**
- 437 - alcohol/drug abuse or dependence, combined rehabilitation and detoxification therapy **Code used in MA and SC only**
- 438 - alcohol/drug abuse or dependence (no longer valid) **Code used in MA and SC only**

FOOTNOTE 5

RATE CODES USED TO IDENTIFY DRUG AND ALCOHOL ABUSE IN NEW YORK STATE

RATE CODES USED TO DEFINE DRUG ABUSE:

1618 - methadone maintenance treatment program
1671 - methadone maintenance treatment program - weekly
2865 - hospital subdivision - drug detoxification
2872 - methadone maintenance treatment program - hospital outpatient
2873 - pregnant addicts and addicted mothers - hospital outpatient
2973 - hospital outpatient methadone maintenance treatment program - weekly
2993 - drug rehabilitation unit - DRG exempt - hospital inpatient
3117 - out of state drug rehabilitation unit - DRG exempt
3118-3119 move to drug or alcohol

RATE CODES USED TO DEFINE ALCOHOL ABUSE:

2819 - inpatient awaiting alcohol placement SNF level
2899 - inpatient awaiting alcohol placement HRF level
2950 - inpatient awaiting alcohol - residential health care facility - DRG facility
2951 - inpatient awaiting alcohol - medically related home care service
2954 - inpatient awaiting alcohol - residential health care facility - non DRG
2955 - inpatient awaiting alcohol - medically related home care - non-DRG
2957 - inpatient alcoholism rehabilitation - DRG exempt
2962 - inpatient waiting alcohol - RHCF - Non-DRG psych unit
2963 - inpatient awaiting alcohol - medically related HC - Non-DRG psych unit
2964 - awaiting alcohol placement - RHCF - Non-DRG AIDS center
2965 - awaiting alcohol placement - medically related home care services - Non-DRG AIDS center
2966 - awaiting alcohol placement - RHCF - Non-DRG alcohol rehabilitation unit
2967 - awaiting alcohol placement - medically related home care services - Non-DRG alcohol rehabilitation unit
2968 - awaiting alcohol placement - RHCF - Non-DRG other exempt unit
2969 - awaiting alcohol placement - medically related home care services - Non-DRG other exempt unit
2970 - awaiting alcohol placement - RHCF - Non-DRG medical rehabilitation unit
2971 - alcohol medical rehabilitation - hospital inpatient
4200 - state operated alcoholism rehabilitation
4201 - state operated alcoholism detoxification
4202 - state operated alcoholism services, freestanding
4203 - federally qualified alcoholism service - detoxification
4204 - federally qualified alcoholism service - rehabilitation
4210 - hospital subdivision - alcoholism detoxification

4211 - hospital subdivision - alcoholism rehabilitation

Footnote 5 (continued)

RATE CODES USED TO DEFINE ALCOHOL ABUSE (continued):

4212 - freestanding inpatient facility - alcoholism detoxification

4213 - freestanding inpatient facility - alcoholism rehabilitation

4250 - alcoholism clinic treatment - regular

4251 - alcoholism clinic treatment - brief

4252 - alcoholism clinic treatment - home visit

4253 - no code in documentation

4254 - alcoholism clinic treatment - collateral visit

4255 - alcoholism treatment - crisis visit

4256 - alcoholism day rehabilitation - crisis visit

4260 - alcoholism day rehabilitation - full day

4261 - alcoholism day rehabilitation - half day

4262 - alcoholism day rehabilitation - collateral visit

4263 - alcoholism day rehabilitation - home

4264 - comprehensive alcoholism care - regular

4265 - comprehensive alcoholism care - home

4266 - comprehensive alcoholism care - collateral

RATE CODES USED TO DEFINE DRUG AND/OR ALCOHOL ABUSE:

2520 - residential substance abuse

2521-2523 - ambulatory substance abuse treatment

2851 - hospital subdivision - detoxification

2871 - hospital outpatient - detoxification alcoholism or drug abuse

3118 - 3123 (definitions to follow)

4271 - ambulatory medically supervised substance abuse visit

4272 - demo only medical support substance abuse treatment - enhanced service

4381 - OMH/CR substance abuse services

9859 - TBI waiver substance abuse program

FOOTNOTE 6

PROVIDER SPECIALTY CODES USED TO IDENTIFY SUBSTANCE ABUSE IN NEW YORK

PROVIDER SPECIALTY CODES USED TO DEFINE DRUG ABUSE:

- 750 - methadone maintenance (physician)
- 751 - methadone maintenance (preferred provider)
- 922 - methadone maintenance treatment program
- 959 - addiction services (non methadone)

PROVIDER SPECIALTY CODES USED TO DEFINE ALCOHOL ABUSE:

- 949 - alcoholism treatment program
- 984- alcoholism clinic treatment - state operated
- 985 - alcoholism day rehabilitation - state operated
- 986 - alcoholism clinic treatment
- 987 - alcoholism day rehabilitation
- 988 - comprehensive alcoholism care
- 989 - alcohol detoxification demo project

PROVIDER SPECIALTY CODES USED TO DEFINE DRUG AND/OR ALCOHOL ABUSE:

- 309 - medically supervised substance abuse
- 514 - toxicology drug analysis (qualitative or forensic) [Note: use of this code is now believed to be an error as it likely just indicates that a test was conducted and not that the results were positive.]
- 518 - toxicology - qualitative toxicology - rehabilitation programs [Note: use of this code is now believed to be an error as it likely just indicates that a test was conducted and not that the results were positive.]

FOOTNOTE 7

PROCEDURE CODES INDICATING SUBSTANCE ABUSE TREATMENT ON MARYLAND HMO ENCOUNTER RECORDS (NO INSTANCES OF THESE CODES WERE FOUND ON THE FILES)

SERVICES FOR ALCOHOL ABUSE:

B0065 - alcohol substance abuse rehab
B0138 - alcohol treatment 1-10 days
B0139 - alcohol day 11+

SERVICES FOR DRUG ABUSE:

B0066 - drug rehabilitation, per diem
D8975 - hypnotic sedative detoxification
Z8975 - hypnotic sedative detoxification

SERVICES FOR ALCOHOL AND/OR DRUG ABUSE:

B0062 - substance abuse
B0076 - rehabilitation I
B0077 - rehabilitation II
B0078 - rehabilitation III
B0071 - chemical detoxification
D0016 - outpatient intensive treatment phase I
D0017 - aftercare phase II
D0018 - relapse prevention
D0019 - adolescent at risk program
D0020 - adolescent aftercare
D0021 - adolescent advanced aftercare
D1110 - 1st day detoxification, National Mentor HC
D1111 - 2nd-unlimited day detoxification, National Mentor HC
D1112 - outpatient residential treatment/day National Mentor HC
D4500 - substance abuse, Blue Ridge det
D5400 - outpatient detoxification services Sheppard Pratt
D5401 - outpatient detoxification service day treatment Sheppard Pratt
D5403 - old intensive op eve program
D5605 - outpatient detoxification
D5606 - detoxification greater 3 days
D5607 - intake with withhold
D5608 - phase I with withhold

Footnote 7 (continued)

SERVICES FOR ALCOHOL AND/OR DRUG ABUSE (continued):

D5609 - phase II with withhold
D5610 - phase III
D7122 - PAGW phase I and II (50 visits)
D7123 - S.M. Phase I 10 visits intensive
D7124 - SM Phase II 40 visits intensive
D7125 - SM non-intensive phase I 50 visit
D8114 - detoxification, Dr. Kolodner
D8115 - rehabilitation intensive phase
D8835 - Orchard Hill, outpatient detoxification services
D8838 - Dr. Kolodner rehabilitation
D8912 - detoxification service/contract
D8913 - intake evaluation no withhold
D8914 - phase III no withhold
D8915 - USAP or rehabilitation 36 visits
D8916 - phase I no withhold
D8917 - phase II no withhold
D8920 - phase IV withhold
D8921 - phase V with withhold
D8922 - phase VI with withhold
D8923 - evening program
D8924 - new outlook phase III
D9800 - old psi op rehabilitation ph 1
D9801 - old psi op rehabilitation ph 2
D9802 - old psi op rehabilitation ph 3
Z0016 - outpatient intensive treatment phase I
Z0017 - aftercare phase II
Z0018 - relapse prevention
Z1108 - adolescent rehab/day National Mentor HC
Z1109 - adult rehab/day National Mentor HC
Z1110 - 1st day detoxification, National Mentor HC
Z1111 - 2nd - unlimited day detoxification National Mentor HC
Z1112 - outpatient residential treatment/day National Mentor HC
Z5401 - outpatient detoxification service day treatment Sheppard Pratt
Z5605 - outpatient detoxification
Z5606 - detoxification great 3 days
Z5607 - intake with withhold
Z5608 - phase I with withhold
Z5609 - phase II with withhold
Z7120 - PAGW outpatient detoxification service
Z7122 - PAGW phase I and II (50 visits)
Z7123 - SM Phase I 10 visits intensive
Z7124 - SM phase 40 visits intensive

Footnote 7 (continued)

SERVICES FOR ALCOHOL AND/OR DRUG ABUSE (continued):

Z7125 - SM non-intensive phase I 50 visits
Z8982 - partial day rehabilitation services
Z8114 - detoxification; Dr. Kolodner
Z8835 - Orchard Hill outpatient detoxification services
Z8912 - detoxification service/contract
Z8913 - intake evaluation no withhold
Z8914 - phase III no withhold
Z8916 - phase I no withhold
Z8917 - phase II no withhold
Z8920 - phase IV with withhold
Z8921 - phase V with withhold
Z8922 - phase VI with withhold
Z8923 - evening program

APPENDIX F

DEMONSTRATION TREATMENT PROGRAMS

Chrysomelidae



APPENDIX F

DEMONSTRATION SUBSTANCE ABUSE TREATMENT PROGRAMS BY STATE

Treatment Facility by State	Level of Care	Number of Beds or Slots*	On-site Child Care	Transportation Services	Other Services Provided
MASSACHUSETTS					
Edwina Martin House	Residential for women and infants	4	✓	✓	*
Women, Inc.	Residential for women and infants	8	✓	✓	*
Steppingstone	Residential for women and infants	6	✓	✓	*
Emerson House	Residential for women and infants	10	✓	✓	*
Serenity House	Residential for women and infants	4	✓	✓	*
Women's View	Residential for women and infants	2	✓	✓	*
Project COPE	Residential for women and infants	4	✓	✓	*
Neil J. Houston House	Residential for women and infants	15	✓	✓	*
New Day	Residential for women and infants	10	✓	✓	*
My Sister's House	Residential for women and infants	4	✓	✓	*
Faith House	Residential for women and infants	4	✓	✓	*
Entre Familia	Residential for women and children	15	✓	✓	*
Celeste House	Residential for women and children	12	✓	✓	*

*Other services provided in the Massachusetts facilities include intensive case management, links to primary health care and social services, childbirth education, parenting components, HIV/AIDS counseling, family reunification services, and life skills education.

**Other services provided in the New York facilities as required to participate in the demonstration include vocational and education development services, skill, life skill and self-esteem building services, health education, and nutritional counseling services.

*Number of slots refers to total slots in the facility, not those reserved for demonstration participants.

Appendix F (continued)

Treatment Facility by State	Level of Care	Number of Beds or Slots*	On-site Child Care	Transportation Services	Other Services Provided
Latinas y Ninos	Residential for women and children	10	✓	✓	*
H.A.R.T. House	Residential for women and children	12	✓	✓	*
NEW YORK					
United Bronx Parents/La Casita	Residential	89	✓	✓	**
Odyssey House	Residential	508	✓	✓	**
Veritas, Inc.	Residential	36	✓	✓	**
Apple, Inc.	Residential	322	✓	✓	**
New Hope Manor	Residential	40	✓	✓	**
Tremont Commonwealth	Ambulatory	160	✓	✓	**
Canarsie Aware, Inc.	Ambulatory	50	✓	✓	**
Reality House, Inc.	Ambulatory	250	✓	✓	**
SCAN, NY	Ambulatory	120	✓	✓	**
Bedford Stuyvesant/Loving Hands	Ambulatory	60	✓	✓	**
Outreach Development Corp.	Ambulatory	160	✓	✓	**
Maternity, Infant Care (MIC)	Ambulatory	40	✓	✓	**

*Other services provided in the Massachusetts facilities include intensive case management, links to primary health care and social services, childbirth education, parenting components, HIV/AIDS counseling, family reunification services, and life skills education.

**Other services provided in the New York facilities as required to participate in the demonstration include vocational and education development services, skill, life skill and self-esteem building services, health education, and nutritional counseling services.

*Number of slots refers to total slots in the facility, not those reserved for demonstration participants.

Appendix F (continued)

Treatment Facility by State	Level of Care	Number of Beds or Slots*	On-site Child Care	Transportation Services	Other Services Provided
Daytop Village	Ambulatory	350	✓	✓	**
Lake Shore Community Health Center	Medically-Supervised Ambulatory	175	✓	✓	**
Crouse Irving Memorial Hospital	Medically-Supervised Ambulatory	184	✓	✓	**
Pius XII Youth & Family	Medically-Supervised Ambulatory	150	✓	✓	**
Narco Freedom	Medically-Supervised Ambulatory	305	✓	✓	**
Syracuse Community Health Center	Medically-Supervised Ambulatory	90		✓	**
Project Return Foundation/ Chelsea-Tribeca	Medically-Supervised Ambulatory	50		✓	**
SOUTH CAROLINA					
Dawn Center	Outpatient treatment	NA		✓	Transitional housing; family preservation services; developmental screening

*Other services provided in the Massachusetts facilities include intensive case management, links to primary health care and social services, childbirth education, parenting components, HIV/AIDS counseling, family reunification services, and life skills education.

**Other services provided in the New York facilities as required to participate in the demonstration include vocational and education development services, skill, life skill and self-esteem building services, health education, and nutritional counseling services.

*Number of slots refers to total slots in the facility, not those reserved for demonstration participants.

Appendix F (continued)

Treatment Facility by State	Level of Care	Number of Beds or Slots*	On-site Child Care	Transportation Services	Other Services Provided
WASHINGTON					
Riel House	Long-term residential treatment facility for pregnant and parenting women and their children	14 women and 21 children up to age 6	✓		Therapeutic child care and crisis nursery services for children of substance-abusing women
Sundown M Ranch	Non-hospital based treatment facility Medical stabilization and short-term residential treatment services	50			Therapeutic child care and crisis nursery services for children of substance-abusing women

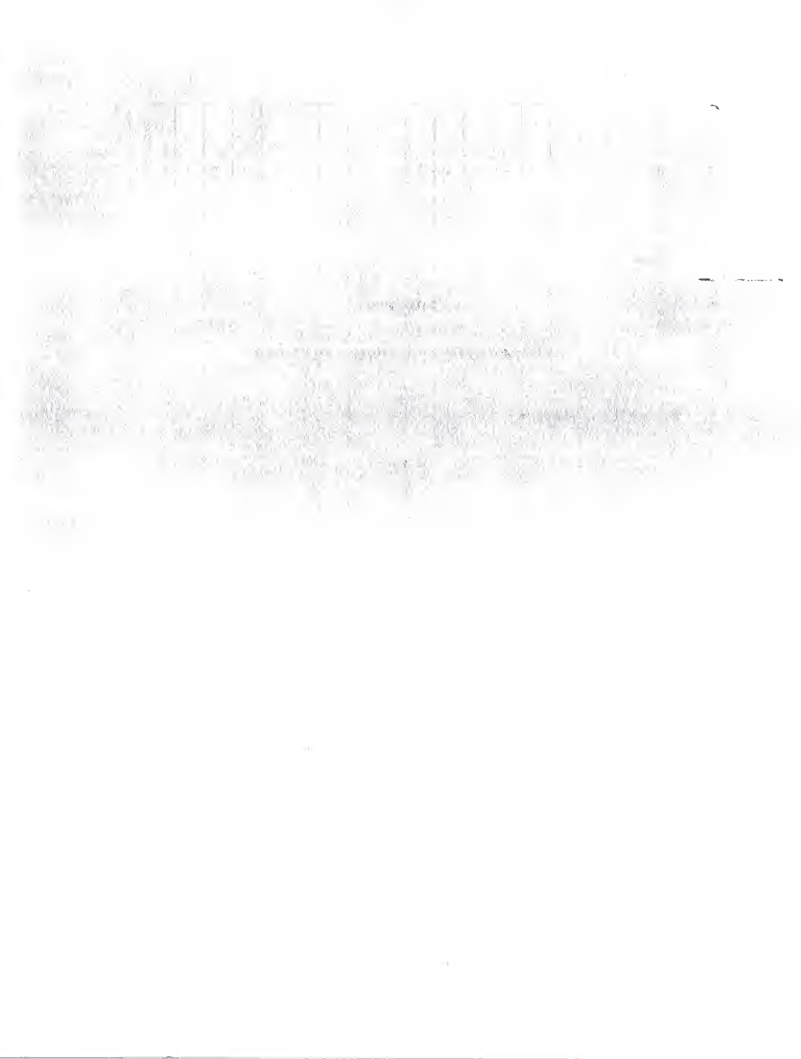
*Other services provided in the Massachusetts facilities include intensive case management, links to primary health care and social services, childbirth education, parenting components, HIV/AIDS counseling, family reunification services, and life skills education.

**Other services provided in the New York facilities as required to participate in the demonstration include vocational and education development services, skill, life skill and self-esteem building services, health education, and nutritional counseling services.

*Number of slots refers to total slots in the facility, not those reserved for demonstration participants.

APPENDIX G

UNADJUSTED AREAWIDE OUTCOMES



APPENDIX TABLE G.1

CHANGES IN USE OF PRENATAL CARE(UNADJUSTED RATES)
(Medicaid Pregnant Substance Abusers in the Demonstration and Comparison Areas)

Measures of Prenatal Care	Demonstration Area			Comparison Area			Difference of Differences
	Baseline Period	Demo. Period	Change	Baseline Period	Demo. Period	Change	
Maryland							
Percent with No Prenatal Care	11.7	10.4	(1.3)	10.1	13.7	3.6	(4.9)
Percent with Early Prenatal Care	52.8	46.4	(6.4)	52.3	46.4	(5.9)	(0.5)
Percent with Late Prenatal Care	9.6	13.1	3.5	5.3	9.0	3.8	(0.3)
Percent with Adequate Prenatal Care	35.4	43.0	7.6	44.4	50.5	6.0	1.6
New York							
Percent with No Prenatal Care	20.7	14.7	(6.0)	20.3	9.4	(10.9)	4.9
Percent with Early Prenatal Care	30.6	35.8	5.2	24.7	35.6	10.9	(5.7)
Percent with Late Prenatal Care	16.3	14.8	(1.5)	21.7	16.0	(5.7)	4.2
Percent with Adequate Prenatal Care	26.0	30.7	4.7	21.4	30.5	9.1	(4.4)
South Carolina							
Percent with No Prenatal Care	9.2	5.0	(4.2)	6.4	8.2	1.8	(6.1)
Percent with Early Prenatal Care	49.5	55.4	5.8	59.6	52.1	(7.5)	13.4
Percent with Late Prenatal Care	2.8	6.6	3.9	4.3	5.5	1.2	2.6
Percent with Adequate Prenatal Care	24.1	51.2	27.2	63.8	52.1	(11.8)	38.9 *
Washington							
Percent with No Prenatal Care	5.7	5.5	(0.2)	1.2	0.4	(0.7)	0.6
Percent with Early Prenatal Care	68.8	69.0	0.2	62.2	67.7	5.5	(5.3)
Percent with Late Prenatal Care	6.1	8.0	2.0	3.0	5.5	2.5	(0.5)
Percent with Adequate Prenatal Care	41.3	46.8	5.6	67.4	74.5	7.1	(1.5)

Notes: 1. Source: birth certificates.

2. For definitions of time periods and study areas, see Figure 1.1 and Appendix C.

3. *Significantly different at the .05 level, two-tailed test.

APPENDIX TABLE G.2

CHANGES IN USE OF SUBSTANCE ABUSE TREATMENT (UNADJUSTED RATES)
(Medicaid Pregnant Substance Abusers in the Demonstration and Comparison Areas)

Measures of Substance Abuse Treatment	Demonstration Area			Comparison Area			Difference of Differences
	Baseline Period	Demo. Period	Change	Baseline Period	Demo. Period	Change	
New York							
Percent with Any Treatment	51.2	53.4	2.2	53.1	55.9	2.9	(0.6)
Percent with Prenatal Treatment	37.4	37.0	(0.4)	40.3	39.9	(0.5)	0.1
Percent with Treatment Who Had Intensive Treatment	6.5	9.1	2.7	2.5	6.6	4.1	(1.4)
Percent with Treatment Who Had Intensive Treatment and Adequate Prenatal Care	2.7	2.1	(0.6)	0.0	2.4	2.4	(2.9)*
South Carolina							
Percent with Any Treatment	46.2	76.8	30.6	54.9	76.3	21.4	9.2
Percent with Prenatal Treatment	23.5	51.2	27.7	41.2	52.6	11.5	16.2
Percent with Treatment Who Had Intensive Treatment	7.1	18.8	11.6	0.0	0.0	0.0	11.6
Percent with Treatment Who Had Intensive Treatment and Adequate Prenatal Care	0.0	5.2	5.2	0.0	0.0	0.0	5.2 *
Washington							
Percent with Any Treatment	58.3	44.3	(14.0)	42.3	29.7	(12.6)	(1.4)
Percent with Prenatal Treatment	37.1	32.8	(4.3)	36.0	25.0	(11.0)	6.7
Percent with Treatment Who Had Intensive Treatment	24.0	25.0	1.0	11.5	8.5	(3.1)	4.1
Percent with Treatment Who Had Intensive Treatment and Adequate Prenatal Care	5.3	6.3	1.1	7.7	7.1	(0.5)	1.6

- Notes: 1. Source: Medicaid claims, birth certificates, and state substance abuse treatment files.
2. For definitions of time periods and study areas, see Figure I.1 and Appendix C.
3. *Significantly different at the .05 level, two-tailed test.



APPENDIX TABLE G.3

CHANGES IN INFANT BIRTHWEIGHT (UNADJUSTED RATES)
(Medicaid Pregnant Substance Abusers in the Demonstration and Comparison Areas)

Measures of Birthweight	Demonstration Area			Comparison Area			Difference of Differences
	Baseline Period	Demo. Period	Change	Baseline Period	Demo. Period	Change	
Maryland							
Percent with Low Birthweight (<2500 grams)	23.2	29.2	6.0	28.7	34.3	5.6	0.4
Percent with Very Low Birthweight (<1500 grams)	2.2	5.1	2.9	3.6	6.2	2.7	0.3
Average Birthweight	2,880	2,748	(132)	2,792	2,684	(108)	(24)
New York							
Percent with Low Birthweight (<2500 grams)	24.7	24.5	(0.2)	29.1	22.5	(6.6)	6.5
Percent with Very Low Birthweight (<1500 grams)	4.7	4.1	(0.6)	3.4	3.8	0.3	(0.9)
Average Birthweight	2,863	2,885	22	2,891	2,937	46	(24)
South Carolina							
Percent with Low Birthweight (<2500 grams)	21.3	19.2	(2.1)	27.7	21.1	(6.5)	4.4
Percent with Very Low Birthweight (<1500 grams)	4.6	5.0	0.4	0.0	4.2	4.2	(3.9)
Average Birthweight	2,910	2,926	16	2,953	2,996	43	(27)
Washington							
Percent with Low Birthweight (<2500 grams)	10.8	11.2	0.4	8.2	9.0	0.8	(0.4)
Percent with Very Low Birthweight (<1500 grams)	2.7	2.4	(0.3)	0.6	0.4	(0.2)	(0.1)
Average Birthweight	3,159	3,189	30	3,297	3,262	(35)	65

- Notes:
1. Source: birth certificates.
 2. For definitions of time periods and study areas, see Figure 1.1 and Appendix C.
 3. *Significantly different at the .05 level, two-tailed test.



APPENDIX TABLE G.4

CHANGES IN MEAN MEDICAID EXPENDITURES(UNADJUSTED RATES)
(Medicaid Pregnant Substance Abusers in the Demonstration and Comparison Areas)

	Demonstration Area			Comparison Area			Difference of Differences
	Baseline Period	Demo. Period	Change	Baseline Period	Demo. Period	Change	
Medicaid Expenditures							
Maryland							
Mean Total Expenditures	16,652	21,175	4,524	16,426	16,225	(200)	4,724 *
Mean Prenatal Substance Abuse Treatment Expenditures	2,563	3,671	1,108	1,651	2,530	879	229
Mean Other Prenatal & Delivery Expenditures	10,654	11,913	1,259	11,021	9,915	(1,106)	2,365
Mean Postnatal Substance Abuse Treatment Expenditures	1,184	1,979	795	1,014	1,012	(2)	797
Mean Other Postnatal Expenditures	2,251	2,747	497	2,651	2,413	(238)	734
New York							
Mean Total Expenditures	18,685	22,962	4,277	19,006	22,402	3,395	881
Mean Prenatal Substance Abuse Treatment Expenditures	902	1,034	133	1,002	752	(250)	383
Mean Other Prenatal & Delivery Expenditures	15,635	18,161	2,526	15,590	18,252	2,662	(136)
Mean Postnatal Substance Abuse Treatment Expenditures	470	772	303	603	1,011	409	(106)
Mean Other Postnatal Expenditures	1,664	3,045	1,382	1,757	2,421	664	718
South Carolina							
Mean Total Expenditures	12,393	14,477	2,083	9,211	11,027	1,816	267
Mean Prenatal Substance Abuse Treatment Expenditures	289	607	318	371	149	(222)	539
Mean Other Prenatal & Delivery Expenditures	9,252	10,564	1,312	6,971	8,948	1,977	(665)
Mean Postnatal Substance Abuse Treatment Expenditures	516	910	394	431	657	225	169
Mean Other Postnatal Expenditures	2,342	2,349	7	1,399	1,256	(144)	151
Washington							
Mean Total Expenditures	8,375	12,695	4,320	8,798	9,706	908	3,413 *
Mean Prenatal Substance Abuse Treatment Expenditures	84	528	445	207	84	(124)	568 *
Mean Other Prenatal & Delivery Expenditures	6,366	8,922	2,556	6,662	7,598	936	1,621
Mean Postnatal Substance Abuse Treatment Expenditures	94	736	643	51	49	(2)	645 *
Mean Other Postnatal Expenditures	1,855	2,521	666	1,856	1,974	118	548

- Notes:
1. Source: Medicaid claims.
 2. For definitions of time periods and study areas, see Figure 1.1 and Appendix C.
 3. *Significantly different at the .05 level, two-tailed test.



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